MECHANICAL SCHEDULES

INDOOR UNITS - SERVED FROM ODU-1

DESIGNATION		IDU 1.1	IDU 1.2	IDU 1.3	IDU 1.4	IDU 2.1	IDU 2.2	IDU 2.3	IDU 3.1	IDU 3.2	IDU 3.3	IDU 4.1	IDU 4.2	IDU 4.3	IDU 4.4	IDU 5.1	IDU 5.2	IDU 5.3
BLOWER	SUPPLY AIR (CFM)	742	390	300	477	459	424	388	477	1024	1024	1024	1434	265	597	265	353	597
	EXT. S P (IN. WC)	-	-	0.31	0.31	-	0.31	-	0.31	0.39	0.39	0.39	0.55	0.31	0.31	0.31	0.31	0.31
	MIN. O.S.A. (CFM)	70	40	120	50	0	0	150	320	110	850	180	250	110	130	140	30	150
	VOLTS/PHASE	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1
	MCA / MOCP	.56	.2	.92	.92	.3	.92	.2	.92	2.3	2.3	2.3	2.3	.92	.92	.92	.92	.92
	DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
COOLING	SENSIBLE (MBH)	30.7	8.1	8.1	16.2	20.5	13.0	16.2	16.2	30.7	30.7	30.7	35.6	6.4	20.5	6.4	10.4	20.5
	TOTAL (MBH)	33.6	8.9	8.9	17.7	22.5	14.3	17.7	17.7	33.6	33.6	33.6	39.0	7.0	22.5	7.0	11.4	22.5
	EADB/EAWB (°F)	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64
HEATING	TOT CAP. (MBH) @25°F	40.6	10.9	10.9	21.5	27.3	17.1	21.5	21.5	40.6	40.6	40.6	43.8	8.5	27.3	8.5	13.6	27.3
	KW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	STAGES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FILTER	TYPE	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY
	P D (IN WC)	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
	EFFICIENCY	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8
MANUFACTURER		LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG
TYPE		CEILING CASSETTE	CEILING CASSETTE	CONCEALED DUCTED	CONCEALED DUCTED	WALL MOUNTED	WALL MOUNTED	CEILING CASSETTE	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED
MODEL NUMBER		ARNU363TNC2	ARNU093TPAA	ARNU093BHA2	ARNU183BHA2	ARNU243S5L2	ARNU153SEL2	ARNU183TNAA	ARNU183BHA2	ARNU363B6A2	ARNU363B6A2	ARNU363B6A2	ARNU423B6A2	ARNU073BHA2	ARNU243BHA2	ARNU073BHA2	ARNU123SEL2	ARNU243BHA2
LOCATION																		
CONNECTED ODU / BRANCH CONTROLLER		ODU 1 HR 1	ODU 1 HR 1	ODU 1 HR 1	ODU 1 HR 1	ODU 1 HR 2	ODU 1 HR 2	ODU 1 HR 2	ODU 1 HR 3	ODU 1 HR 3	ODU 1 HR 3	ODU 1 HR 4	ODU 1 HR 4	ODU 1 HR 4	ODU 1 HR 4	ODU 1 HR 5	ODU 1 HR 5	ODU 1 HR 5
OPER. WT (LBS)		52	32	59	59	32	59	35	59	84	84	84	117	59	59	59	59	59
ACCESSORIES		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1. PROVIDE FACTORY APPROVED CONDENSATE PUMP

INDOOR UNITS - SERVED FROM ODU-2

DESIGNATION		IDU 6.1	IDU 6.2	IDU 6.3	IDU 6.4	IDU 7.1	IDU 7.2	IDU 7.3	IDU 7.4	IDU 8.1	IDU 8.2	IDU 8.3	IDU 8.4	IDU 9.1	IDU 9.2	IDU 9.3	IDU 10.1	IDU 10.2	IDU 10.3
BLOWER	SUPPLY AIR (CFM)	477	300	353	353	265	265	353	265	424	353	390	390	353	300	597	1582	597	353
	EXT. S P (IN. WC)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	-	-	0.31	0.31	0.31	0.55	0.31	0.31
	MIN. O.S.A. (CFM)	130	20	190	120	20	20	40	80	180	20	40	40	20	20	40	370	50	20
	VOLTS/PHASE	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1
	MCA / MOCP	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.2	.2	.92	.92	.92	2.3	.92	.92
	DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
COOLING	SENSIBLE (MBH)	16.2	8.1	10.4	10.4	6.4	6.4	10.4	6.4	13.0	10.4	8.1	8.1	10.4	8.1	20.5	40.8	20.5	10.4
	TOTAL (MBH)	17.7	8.9	11.4	11.4	7.0	7.0	11.4	7.0	14.3	11.4	8.9	8.9	11.4	8.9	22.5	44.6	22.5	11.4
	EADB/EAWB (°F)	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64	80/64
HEATING	TOT CAP. (MBH) @25°F	21.5	10.9	13.6	13.6	8.5	8.5	13.6	8.5	17.1	13.6	10.9	10.9	13.6	10.9	27.3	51.2	27.3	13.6
	KW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	STAGES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FILTER	TYPE	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY	FACTORY
	P D (IN WC)	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
	EFFICIENCY	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8	MERV 8
MANUFACTURER		LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG
TYPE		CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CEILING CASSETTE	CEILING CASSETTE	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED	CONCEALED DUCTED
MODEL NUMBER		ARNU183B6A2	ARNU093BHA2	ARNU123BHA2	ARNU123BHA2	ARNU073BHA2	ARNU073BHA2	ARNU123BHA2	ARNU073BHA2	ARNU153BHA2	ARNU123BHA2	ARNU093TPAA	ARNU093TPAA	ARNU123BHA2	ARNU093BHA2	ARNU243BHA2	ARNU483BRA2	ARNU243BHA2	ARNU123BHA2
LOCATION																			
CONNECTED ODU / BRANCH CONTROLLER		ODU 2 HR 6	ODU 2 HR 6	ODU 2 HR 6	ODU 2 HR 6	ODU 2 HR 7	ODU 2 HR 7	ODU 2 HR 7	ODU 2 HR 7	ODU 2 HR 8	ODU 2 HR 8	ODU 2 HR 8	ODU 2 HR 8	ODU 2 HR 9	ODU 2 HR 9	ODU 2 HR 9	ODU 2 HR 10	ODU 2 HR 10	ODU 2 HR 10
OPER. WT (LBS)		59	59	68		59	59	59	59	59	59	32	32	59	59	59	117	59	192
ACCESSORIES		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1. PROVIDE FACTORY APPROVED CONDENSATE PUMP

CHANGE DUE TO BEAM CONFLICT.

GRILLE SCHEDULE

MARK	DUTY	DESCRIPTION
A	CEILING SUPPLY	TITUS MODEL TDC (TYPE 3) STEEL DIFFUSER FOR DROP-IN TILE CEILING, 18"x18" STANDARD CORE, ROUND NECK, WHITE FINISH.
B	FILTER RETURN	TITUS MODEL 350FLF1 (TYPE 3) ALUMINUM RETURN GRILLE FOR DROP-IN TILE CEILING, 35 DEG FIXED DEFLECTION, 20"x20"x1" FILTER FRAME, HINGED TOP, SQUARE NECK, WHITE FINISH.
C	CEILING EXHAUST	TITUS MODEL 350FL (TYPE 3) ALUMINUM RETURN GRILLE FOR DROP-IN TILE CEILING, 35 DEG FIXED DEFLECTION, HINGED TOP, SQUARE NECK, WHITE FINISH.
D	CEILING SUPPLY	TITUS MODEL TDC (TYPE 1) STEEL DIFFUSER FOR SURFACE MOUNTING, SQUARE OR RECTANGULAR NECK, WHITE FINISH.
E	FILTER RETURN	TITUS MODEL 350FLF1 (TYPE 1) ALUMINUM RETURN GRILLE FOR SURFACE MOUNTING, 35 DEG FIXED DEFLECTION, 20"x20"x1" FILTER FRAME, HINGED TOP, SQUARE NECK, WHITE FINISH.
F	CEILING EXHAUST	TITUS MODEL 350FL (TYPE 1) ALUMINUM RETURN GRILLE FOR SURFACE MOUNTING, 35 DEG FIXED DEFLECTION, HINGED TOP, SQUARE NECK, WHITE FINISH.
G	LINEAR SUPPLY	TITUS MODEL ML-37 LINEAR SLOT DIFFUSERS, WITH 1/2" SLOT SPACING, 2-SLOT, BORDER TYPE 2B, PRIMER FINISH.

ENERGY RECOVERY VENTILATORS

DESIGNATION		ERV 1	ERV 2
MCA/MOCP (AMPS)		23.2/25	1
VOLTS / PHASE		208/3	208/3
OUTSIDE AIR	FLOW RATE (CFM)	2700	1700
	TOTAL SP (IN. WC)	1.00	1.00
	HP / BRAKE HP	5/2.9	2/1.3
	R.P.M.	1,764	1,594
	SUMMER		
	EADB/EAWB (°F)	105/70	105/70
	LADB/LAWB (°F)	84.7/64.4	84.7/64.4
	WINTER		
	EADB/EAWB (°F)	2.00	2.00
	LADB/LAWB (°F)	57/40.6	57.5/41.2
EXHAUST AIR	FLOW RATE (CFM)	0	0
	TOTAL SP (IN. WC)	1.00	1.00
	HP / BRAKE HP	5/2.9	2/1.3
	R.P.M.	1,764	1,594
	SUMMER		
	EADB/EAWB (°F)	75.00	75.00
	RELATIVE HUMIDITY	50	50
	WINTER		
	EADB/EAWB (°F)	70.00	70.00
	RELATIVE HUMIDITY	35	35
RECOVERY CAP. (TONS)		4.30	2.70
RECOVERY CAP. (MBH)		51.6	32.8
MANUFACTURER		RENEWAIR	RENEWAIR
TYPE		PACKAGED ERV	PACKAGED ERV
MODEL NUMBER		HE3XRT	HE2XRT
SERVES		ODU-1	ODU-2
OPER. WT (LBS)		726	488
ACCESSORIES		1,2,3	1,2,3

1 - SUPPLY AND EXHAUST FAN TO BE PROVIDED WITH FACTORY MOUNTED VFD.
2 - PROVIDE FACTORY ROOF CURB WITH VERTICLE FA AND RA CONFIG.
3 - PROVIDE WITH MERV-8 FILTERS

OUTDOOR UNITS

DESIGNATION	ODU 1	ODU 2
VOLTS/PHASE	208/3	208/3
MCA/MOCP	23.2/35 + 24/40 + 31.6/40	23.2/35 + 23.2/35 + 31.6/40
EER (AT ARI)		
COP @ 47 DEG F		
COOLING CAP (MBH)	360.0	336.0
HEATING CAP (MBH)	405.0	378.0
AMBIENT (°F)	95	95
MANUFACTURER	LG	LG
TYPE	HEAT PUMP/ HEAT RECOVERY	HEAT PUMP/ HEAT RECOVERY
MODEL NUMBER	ARUB360DTE4	ARUB336DTE4
LOCATION	ROOF	ROOF
OPER. WT (LBS)	1708	1708
ACCESSORIES	1	1

1. PROVIDE FACTORY TWINING KIT

HEAT RECOVERY BOXES

DESIGNATION	HR-1	HR-2	HR-3	HR-4	HR-5	HR-6	HR-7	HR-8	HR-9	HR-10
VOLTS/PHASE	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1	208 / 1
MCA / MFA	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
MANUFACTURER	LG	LG	LG	LG	LG	LG	LG	LG	LG	LG
MODEL NUMBER	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A	PRHR041A
OUTDOOR UNIT	ODU-1	ODU-1	ODU-1	ODU-1	ODU-1	ODU-2	ODU-2	ODU-2	ODU-2	ODU-2
OPER. WT. (LBS)	49	49	49	49	49	49	49	49	49	49
ACCESSORIES	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

1. PROVIDE INSULATED BALL VALVES ON ALL PORTS AND DRAIN CONNECTION PIPE.
2. PROVIDE RS/RL FITTINGS AND REDUCERS AS REQUIRED PER MANUFACTURER'S SIZING RECOMMENDATIONS.
3. PROVIDE FACTORY APPROVED CONDENSATE PUMP

SHEET INDEX

GENERAL NOTES

1. COORDINATION OF WORK: LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY.
2. THE ACTUAL LOCATION OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED, PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL OR OTHER ELEMENTS.
3. VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.
4. PROVIDE ALL DUCT TRANSITION PIECES AND FITTINGS REQUIRED TO ACCOMMODATE MECHANICAL EQUIPMENT CONNECTIONS, STRUCTURE, ARCHITECTURAL ELEMENTS, AND CHANGES IN DUCT SIZES.
5. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY SMACNA AND CHAPTER 6 OF THE 2010 CMC.
6. ALL DUCTWORK AND PIPING SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF 2010 CMC. INSULATION MATERIALS SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 118, 123, AND 124 OF THE 2010 CALIFORNIA ENERGY CODE.
7. ALL DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS.
8. DUCTWORK SHALL BE SHEET METAL CONSTRUCTED IN COMPLETE CONFORMANCE WITH CMC LATEST EDITION, CHAPTER 6 AND THE LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
9. ALL DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR THE OWNER REPRESENTATIVE.
10. PROVIDE VOLUME DAMPERS IN ALL BRANCH DUCTS (SUPPLY, O.S.A. AND EXHAUST) FOR SYSTEM BALANCING. SEE 5M600.
11. HANDLE, STORE AND INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED IN THE PROJECT MANUAL.
12. INSTALLATION OF VRF SYSTEM AND CONTROLS SHALL BE PERFORMED BY LG CERTIFIED AND TRAINED PERSONNEL.
13. ALL AIR SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED TO MEET THE REQUIRED FLOW. TAB METHODOLOGY SHALL BE SUBMITTED TO OWNER REPRESENTATIVE PRIOR TO IMPLEMENTATION AND IN ACCORDANCE WITH PROJECT SEQUENCING.

MECHANICAL LEGEND

SYMBOL	ITEM	ABBR.
S	STEAM SUPPLY	S
CR	STEAM CONDENSATE RETURN	CR
SBD	SURFACE BLOWDOWN	
D	DRAIN	D
	PIPING CAP	
	EXISTING (DESIGNATED)	(E)
	REMOVE / DEMO EXISTING (DESIGNATED)	
	DIRECTION OF FLOW	
	SUPPLY AIR	SA
	RETURN AIR	RA
	EXHAUST AIR	EA
	PIPE/DUCT TURN DOWN	
	PIPE/DUCT TURN UP	
	ROUND DUCT (SMALLER THAN 10"ø)	
	ROUND FLEXIBLE DUCT	
	RECTANGULAR OR ROUND DUCT (10"ø AND LARGER)	
	EXISTING DUCT (DESIGNATED)	
	REMOVE/ DEMO EXISTING DUCT (DESIGNATED)	
	DUCT WITH ACOUSTIC LINING	
	SUPPLY AIR DUCT DROP	
	SUPPLY AIR DUCT RISE	
	RETURN AIR DUCT DROP	
	RETURN AIR DUCT RISE	
	EXHAUST AIR DUCT DROP	
	EXHAUST AIR DUCT RISE	
	OUTSIDE AIR DUCT DROP	
	OUTSIDE AIR DUCT RISE	
	TURNING VANES	TV
	EXTRACTOR	
CO_2	CO_2 SENSOR	
DD	DUCT DETECTOR	DD
HD	HEAT DETECTOR	HD
SD	SMOKE DETECTOR	SD
M	MOTORIZED DAMPER	
	FIRE DAMPER W/MOTORIZED RESET AND ACCESS DOOR	
	FIRE DAMPER WITH ACCESS PANEL OR SECURITY BARS	
-OR-	FIRE DAMPER WITH ACCESS PANEL	FD
-OR-	FIRE/SMOKE DAMPER WITH ACCESS PANEL	F/SD
	VOLUME CONTROL DAMPER WITH LOCKING QUADRANT	VCD
T	REMOTE T'STAT WITH SENSOR IN DUCT	
T AC-1	THERMOSTAT; THERMOSTAT LABEL EXAMPLE : THERMOSTAT FOR AC-1	T'STAT
	POINT OF CONNECTION TO EXISTING	POC
	BYPASS TIMER	BPT
	THERMOMETER	
	PRESSURE GAGE	
	SECURITY BARS	
	PETE'S PLUG	
	BALANCING COCK	
	BALL VALVE	
	BUTTERFLY VALVE	
	CHECK VALVE	
	CONCENTRIC REDUCER	
	TWO-WAY CONTROL VALVE	
	FLOW SWITCH	FS
	FLEXIBLE CONNECTION	FLEX
	GATE VALVE	
	GLOBE VALVE	
	INSTRUMENT WELL	
	PLUG VALVE	
	PRESSURE RELIEF VALVE	PRV
	"Y" TYPE STRAINER	
	UNION	
1	KEYNOTE	
A	GRILLE TAG	
EF 8	NEW EQUIPMENT TAG EXAMPLE: DESCRIPTION EF, MARK NUMBER 8	
2 / M202	DETAIL REFERENCE EXAMPLE: DETAIL 2, SHEET M202	
3 / M400	SECTION REFERENCE EXAMPLE: SECTION 3, SHEET M400	

Revisions:	Date
CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (95%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

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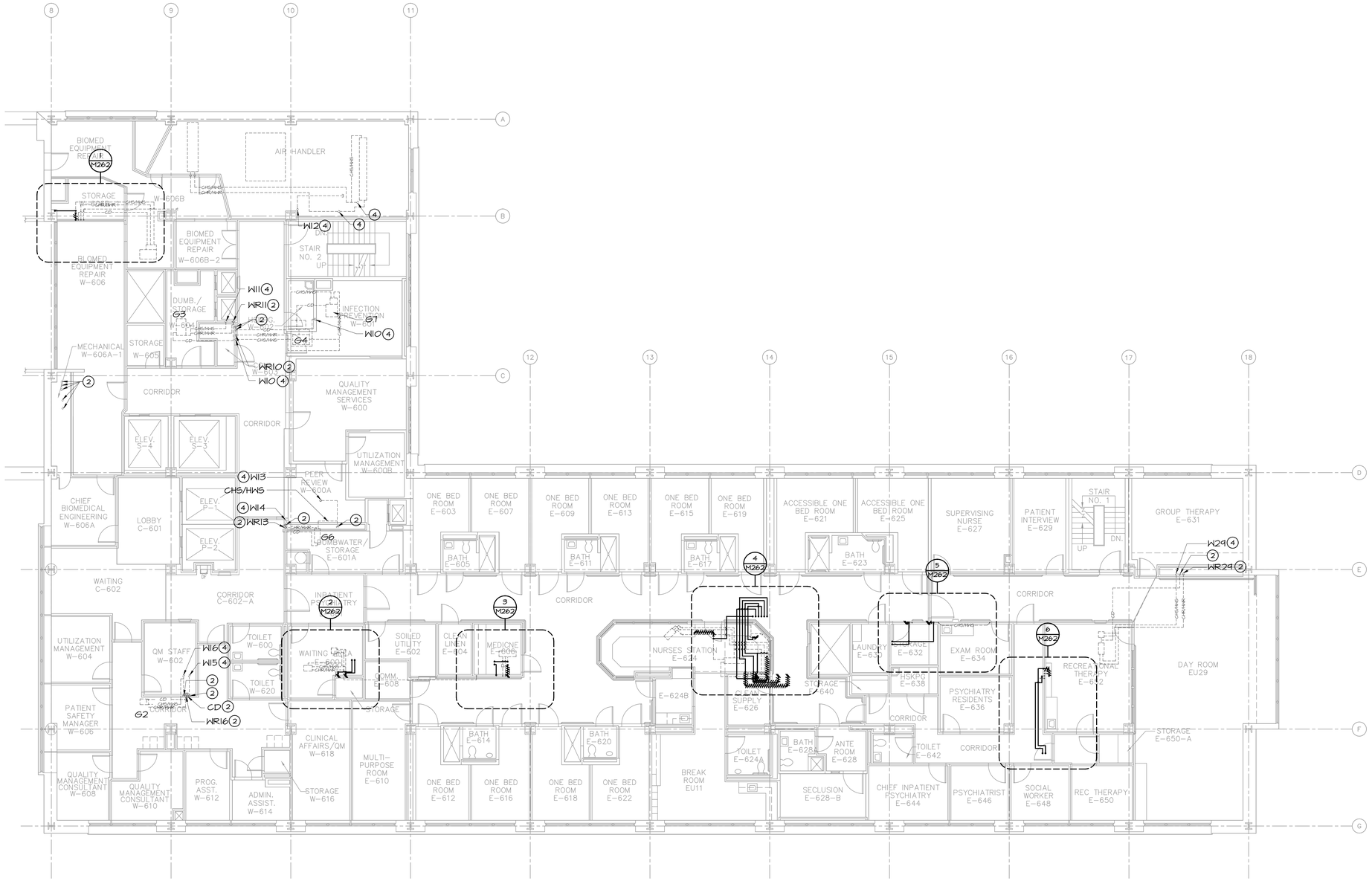
ARCHITECTS ENGINEERS CONNECTED

Drawing Title: GENERAL NOTES, LEGENDS, SCHEDULES
Project Title: RENOVATE 7TH FLOOR BUILDING 1
Project Number: 570-13-202
Building Number: 1
Drawing Number: M100
Dwg. 23 of 52
Approved: Project Director
Location: FRESNO, CA
Date: 4-30-14
Checked:
Drawn:

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



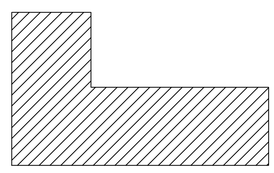
KEYNOTES

1. PROVIDE CAP ON (E) ZONE PIPING SUPPLY SERVING 7TH FLOOR AS INDICATED. CAP TO BE LOCATED AT BRANCH ISOLATION VALVE. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT. CONTRACTOR TO PROTECT (E) SURFACES AND FINISHES FROM DAMAGE.
2. (E) RISER/DROP TO 5TH FLOOR. NO WORK.
3. NEW ZONE SUPPLY PIPE ROUTED TO NEW RISER LOCATION. CONTRACTOR TO FIELD COORDINATE EXACT LOCATION WITH (E) AND/OR (N) WALL LAYOUT.
4. (E) ZONE SUPPLY RISER LOCATION TO BE ACCOMMODATED BY NEW ARCHITECTURAL LAYOUT ON 7TH FLOOR. NO WORK REQUIRED.

GENERAL NOTES

1. ALL SHUTDOWNS OF EXISTING SYSTEMS TO BE COORDINATED WITH OWNER TO LIMIT OPERATIONAL IMPACT. CONTRACTOR SHALL FIELD VERIFY ALL SYSTEMS AND THEIR POTENTIAL SHUT DOWN IMPACT PRIOR TO REMOVAL.
2. PIPES ROUTED WITHIN WALLS AND CONCEALED SPACED HAVING INSULATION HAVE BEEN IDENTIFIED TO CONTAIN ASBESTOS. CONTRACTOR TO COORDINATE WITH ABATEMENT SURVEY FOR POTENTIAL IMPACTS.
3. CONTRACTOR SHALL VERIFY ALL PIPE SERVICES PRIOR TO REMOVAL. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO ARCHITECTS AND OWNERS ATTENTION.
4. CONTRACTOR TO PERFORM ALL REMOVAL AND RE-ROUTING WORK ON 6TH FLOOR THRU (E) ACCESS PANELS. CONTRACTOR TO PROVIDE CEILING ACCESS PANELS AS NECESSARY TO COMPLETE WORK IF ADEQUATE ACCESS IS NOT AVAILABLE.
5. EXISTING DUCT AND PIPING ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. INFORMATION OF (E) LOCATIONS IS BASED UPON EXISTING DRAWINGS AND OWNERS BEST KNOWLEDGE. EXISTING INFORMATION SHOWN MAY NOT BE TAKEN AS COMPREHENSIVE, AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN.

KEY PLAN



SELECTIVE DEMOLITION PARTIAL FLOOR PLAN - 6TH FLOOR

SCALE: 1/8" = 1'-0"

1

CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (60%)	3-19-14
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SCHEMATIC DESIGN SUBMITTAL	12-4-13
Revisions:	Date

CONSULTANTS:

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: SELECTIVE DEMO PARTIAL PLAN – 6TH

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-13-202

Building Number: 1

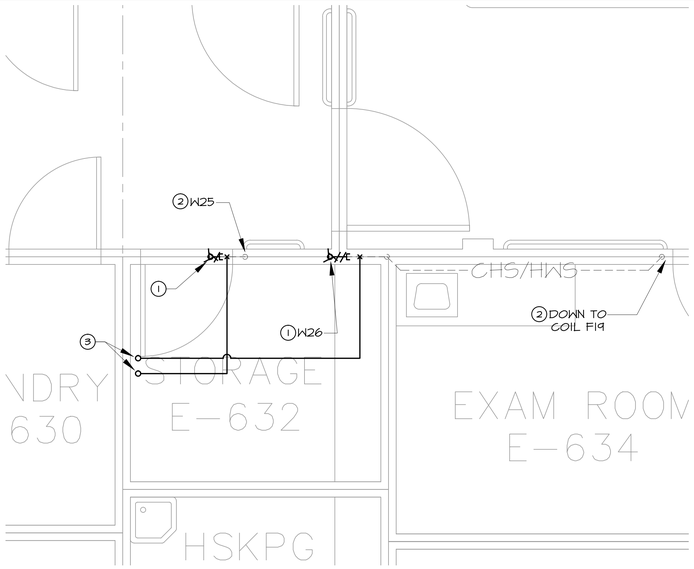
Drawing Number: M261

Dwg. 24 of 52

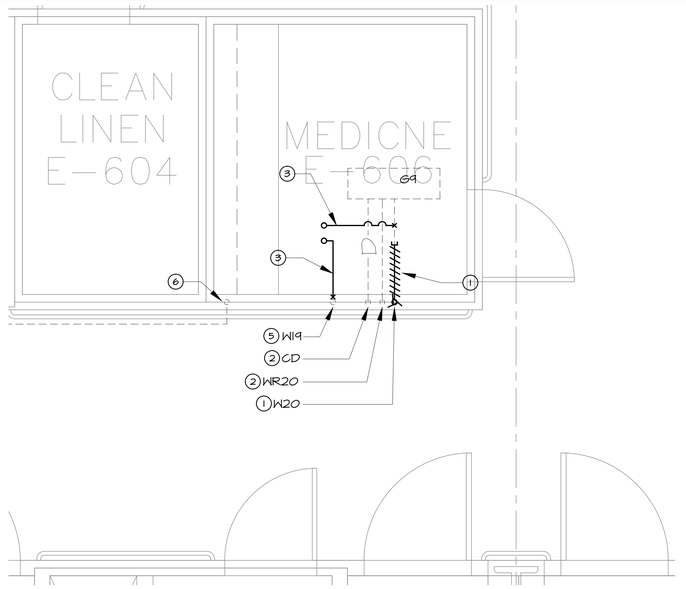
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



SELECTIVE 6TH FLOOR DEMO PARTIAL FLOOR PLAN SCALE: 1/2" = 1'-0" 5



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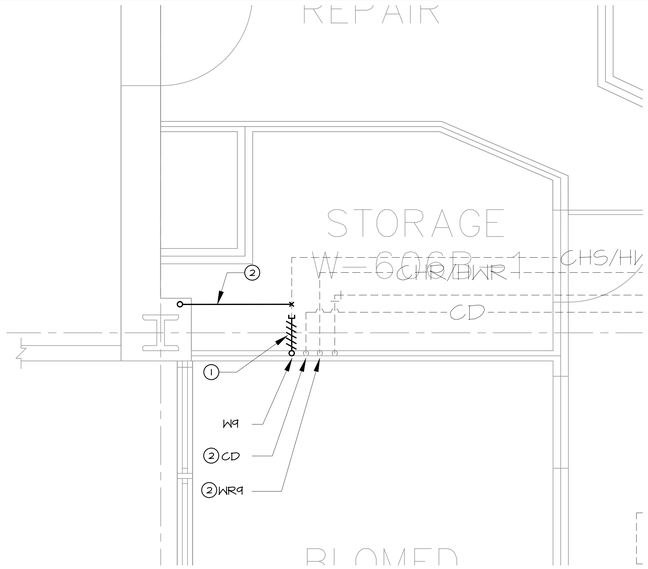
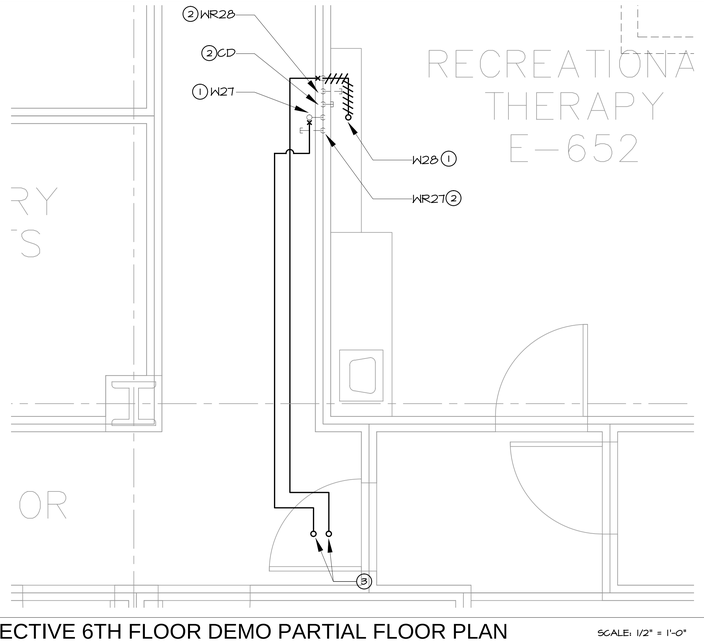
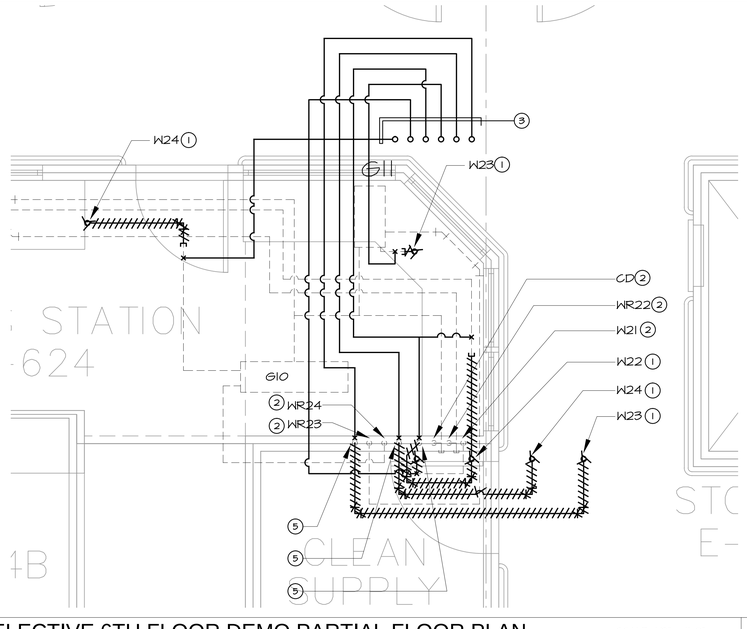


SELECTIVE 6TH FLOOR DEMO PARTIAL FLOOR PLAN SCALE: 1/2" = 1'-0" 1



SELECTIVE 6TH FLOOR DEMO PARTIAL FLOOR PLAN SCALE: 1/2" = 1'-0" 6



SELECTIVE 6TH FLOOR DEMO PARTIAL FLOOR PLAN SCALE: 1/2" = 1'-0" 4

SELECTIVE 6TH FLOOR DEMO PARTIAL FLOOR PLAN SCALE: 1/2" = 1'-0" 2

KEYNOTES

1. PROVIDE CAP ON (E) ZONE PIPING SUPPLY SERVING 7TH FLOOR AS INDICATED. CAP TO BE LOCATED AT BRANCH ISOLATION VALVE. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT. CONTRACTOR TO PROTECT (E) SURFACES AND FINISHES FROM DAMAGE.
2. (E) RISER/DROP TO 5TH FLOOR. NO WORK.
3. NEW ZONE SUPPLY PIPE ROUTED TO NEW RISER LOCATION. CONTRACTOR TO FIELD COORDINATE EXACT LOCATION WITH (E) AND/OR (N) WALL LAYOUT ON 7TH FLOOR.
4. NOT USED
5. PROVIDE CAP ON (E) ZONE SUPPLY RISER SERVING 7TH FLOOR. CAP TO BE LOCATED ABOVE PARTIAL HEIGHT WALL IN CEILING VOID. (E) RISER/DROP TO 5TH FLOOR BEYOND CAP TO REMAIN FOR NEW POC. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT. CONTRACTOR TO PROTECT (E) SURFACES AND FINISHES FROM DAMAGE.
6. FIELD VERIFY RISER SYSTEM. IF RISER IS ZONE SUPPLY THEN COORDINATE WITH ARCHITECT FOR NEW RISER LOCATION AND RE-ROUTING OPTIONS. IF NOT, THEN CAP BACK TO MAIN. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.

Revisions:	Date
CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (60%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: SELECTIVE DEMO PARTIAL PLAN – 6TH

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-13-202

Building Number: 1

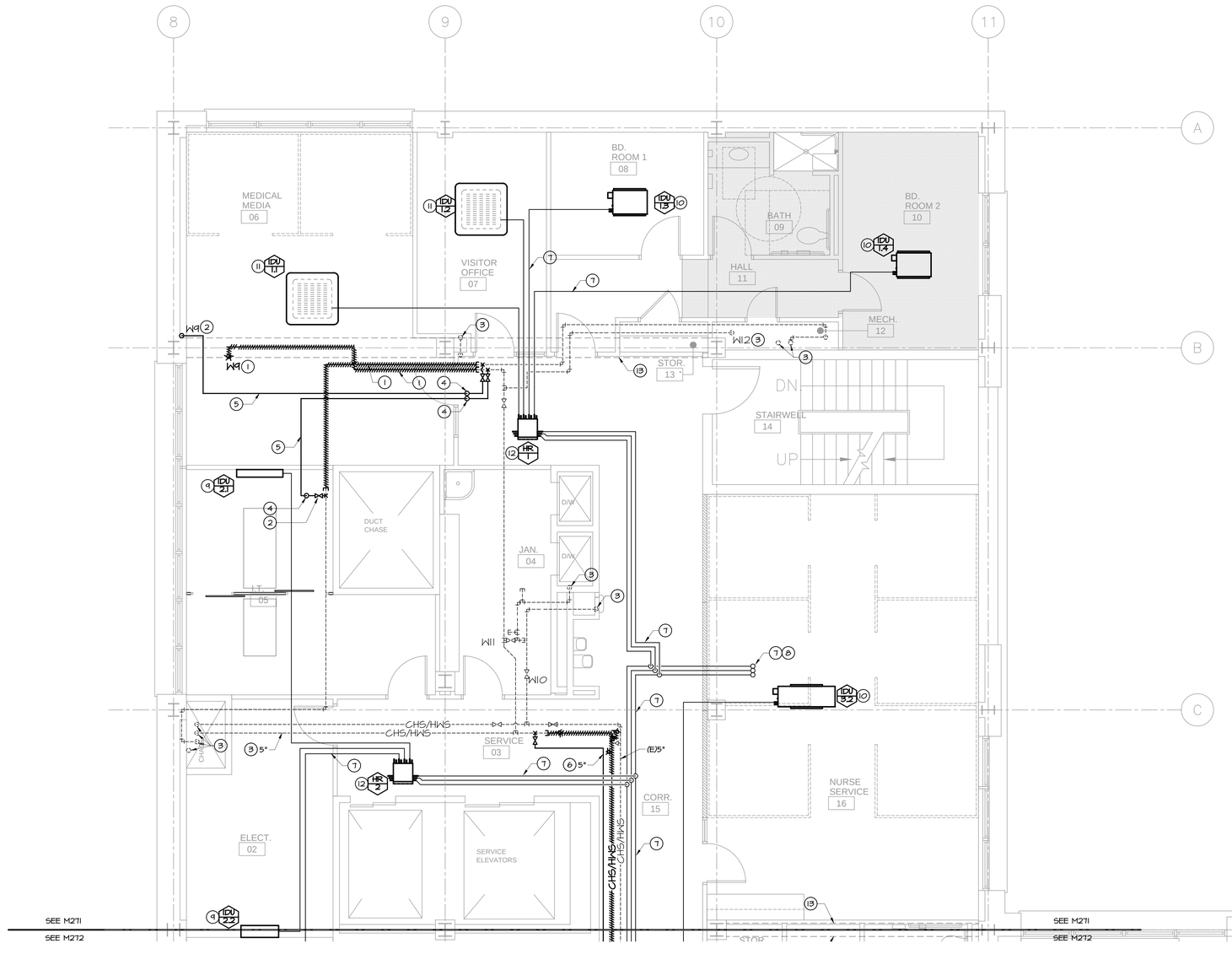
Drawing Number: M262

Dwg. 25 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



7TH FLOOR PIPING PARTIAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

1

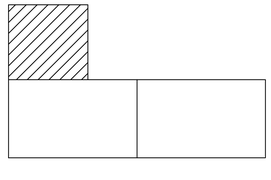
KEYNOTES

1. REMOVE (E) PIPE AS INDICATED AND PROVIDE CAP ON (E) ZONE PIPING SUPPLY SERVING BELOW FLOORS. CAP TO BE LOCATED NEAR POC AS INDICATED. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.
2. NEW ZONE SUPPLY PIPE ROUTED TO NEW RISER LOCATION. PROVIDE S.O.V. AT BRANCH. CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF RISER WITH (E) AND/OR (N) WALL LAYOUT.
3. (E) ZONE SUPPLY RISER LOCATION TO BE ACCOMMODATED BY NEW ARCHITECTURAL LAYOUT ON 7TH FLOOR. NO WORK REQUIRED.
4. ROUTE LINE TO HIGHER ELEVATION TO ACCOMMODATE NEW CEILING LAYOUT. COORDINATE WITH ARCHITECTURAL PLANS FOR CONDITIONS.
5. MATCH SIZE OF (N) PIPE TO SIZE OF (E) PIPE AT P.O.C.
6. (N) PIPE WITH SIZE INCREASED AS DIRECTED BY THE V.A.
7. REFER TO DETAIL 18/M600 FOR PIPE SIZING
8. REFRIGERANT PIPING UP TO ROOF TO ODU-1
9. IDU MOUNTED TO WALL WITH MOUNTING BRACKET PER DETAIL 12/M601. REFER TO DETAIL 10/M601 FOR UNIT CLEARANCES.
10. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
11. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
12. SUSPENDED HEAT RECOVERY BOX MOUNTED ABOVE CEILING PER DETAIL 15/M601.
13. OUTLINE OF CRITICAL LOW BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

GENERAL NOTES

1. ALL SHUTDOWNS OF EXISTING SYSTEMS TO BE COORDINATED WITH OWNER TO LIMIT OPERATIONAL IMPACT. CONTRACTOR SHALL FIELD VERIFY ALL SYSTEMS AND THEIR POTENTIAL SHUT DOWN IMPACT PRIOR TO REMOVAL.
2. PIPES ROUTED WITHIN WALLS AND CONCEALED SPACED HAVING INSULATION HAVE BEEN IDENTIFIED TO CONTAIN ASBESTOS. CONTRACTOR TO COORDINATE WITH ABATEMENT SURVEY FOR POTENTIAL IMPACTS.
3. CONTRACTOR SHALL VERIFY ALL PIPE SERVICES PRIOR TO REMOVAL. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO ARCHITECTS AND OWNERS ATTENTION.
4. EXISTING DUCT AND PIPING ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. INFORMATION OF (E) LOCATIONS IS BASED UPON EXISTING DRAWINGS AND OWNERS BEST KNOWLEDGE. EXISTING INFORMATION SHOWN MAY NOT BE TAKEN AS COMPREHENSIVE, AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN.

KEY PLAN



Revisions:	Date
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CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (65%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: 7TH FLOOR PIPING PARTIAL PLAN

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-13-202

Building Number: 1

Drawing Number: M271

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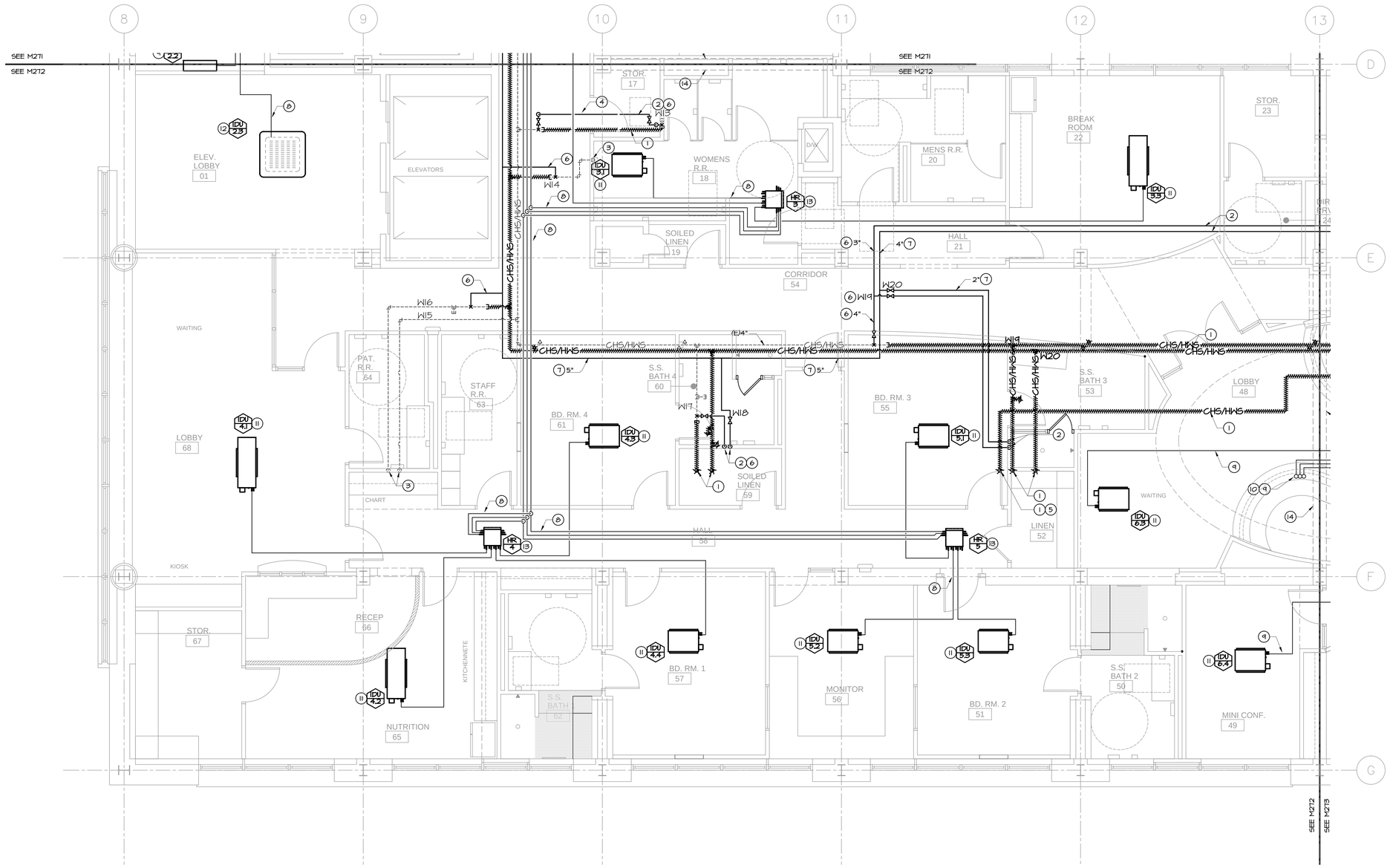
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



7TH FLOOR PIPING PARTIAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

1

KEYNOTES

1. REMOVE (E) PIPE AS INDICATED AND PROVIDE CAP ON (E) ZONE PIPING SUPPLY SERVING BELOW FLOORS. CAP TO BE LOCATED NEAR POC AS INDICATED. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.
2. NEW ZONE SUPPLY PIPE ROUTED TO NEW RISER LOCATION. PROVIDE S.O.V. AT BRANCH. CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF RISER WITH (E) AND/OR (N) WALL LAYOUT.
3. (E) ZONE SUPPLY RISER LOCATION TO BE ACCOMMODATED BY NEW ARCHITECTURAL LAYOUT ON 7TH FLOOR. NO WORK REQUIRED.
4. ROUTE LINE TO HIGHER ELEVATION TO ACCOMMODATE NEW CEILING LAYOUT. COORDINATE WITH ARCHITECTURAL PLANS FOR CONDITIONS.
5. FIELD VERIFY RISER SYSTEM. IF RISER IS ZONE SUPPLY THEN COORDINATE WITH ARCHITECT FOR NEW RISER LOCATION AND RE-ROUTING OPTIONS. IF NOT, THEN CAP BACK TO MAIN. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.
6. MATCH SIZE OF (N) PIPE TO SIZE OF (E) PIPE AT P.O.C.
7. (N) PIPE WITH SIZE INCREASED AS DIRECTED BY THE V.A.
8. REFER TO DETAIL 18/M600 FOR PIPE SIZING
9. REFER TO DETAIL 20/M600 FOR PIPE SIZING
10. REFRIGERANT PIPING UP TO ROOF TO ODU-2
11. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
12. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
13. SUSPENDED HEAT RECOVERY BOX MOUNTED ABOVE CEILING PER DETAIL 15/M601.
14. OUTLINE OF CRITICAL LOW BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

GENERAL NOTES

1. ALL SHUTDOWNS OF EXISTING SYSTEMS TO BE COORDINATED WITH OWNER TO LIMIT OPERATIONAL IMPACT. CONTRACTOR SHALL FIELD VERIFY ALL SYSTEMS AND THEIR POTENTIAL SHUT DOWN IMPACT PRIOR TO REMOVAL.
2. PIPES ROUTED WITHIN WALLS AND CONCEALED SPACED HAVING INSULATION HAVE BEEN IDENTIFIED TO CONTAIN ASBESTOS. CONTRACTOR TO COORDINATE WITH ABATEMENT SURVEY FOR POTENTIAL IMPACTS.
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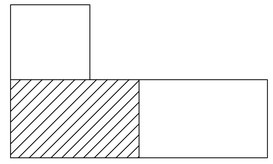
4. EXISTING DUCT AND PIPING ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. INFORMATION OF (E) LOCATIONS IS BASED UPON EXISTING DRAWINGS AND OWNERS BEST KNOWLEDGE. EXISTING INFORMATION SHOWN MAY NOT BE TAKEN AS COMPREHENSIVE, AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN.

KEY PLAN



CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (95%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13
Revisions:	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. SCHLUNDT M30955 Exp. 08-30-14 MECHANICAL STATE OF CALIFORNIA

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: 7TH FLOOR PIPING PARTIAL PLAN

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Project Number: 570-13-202

Building Number: 1

Approved: Project Director

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

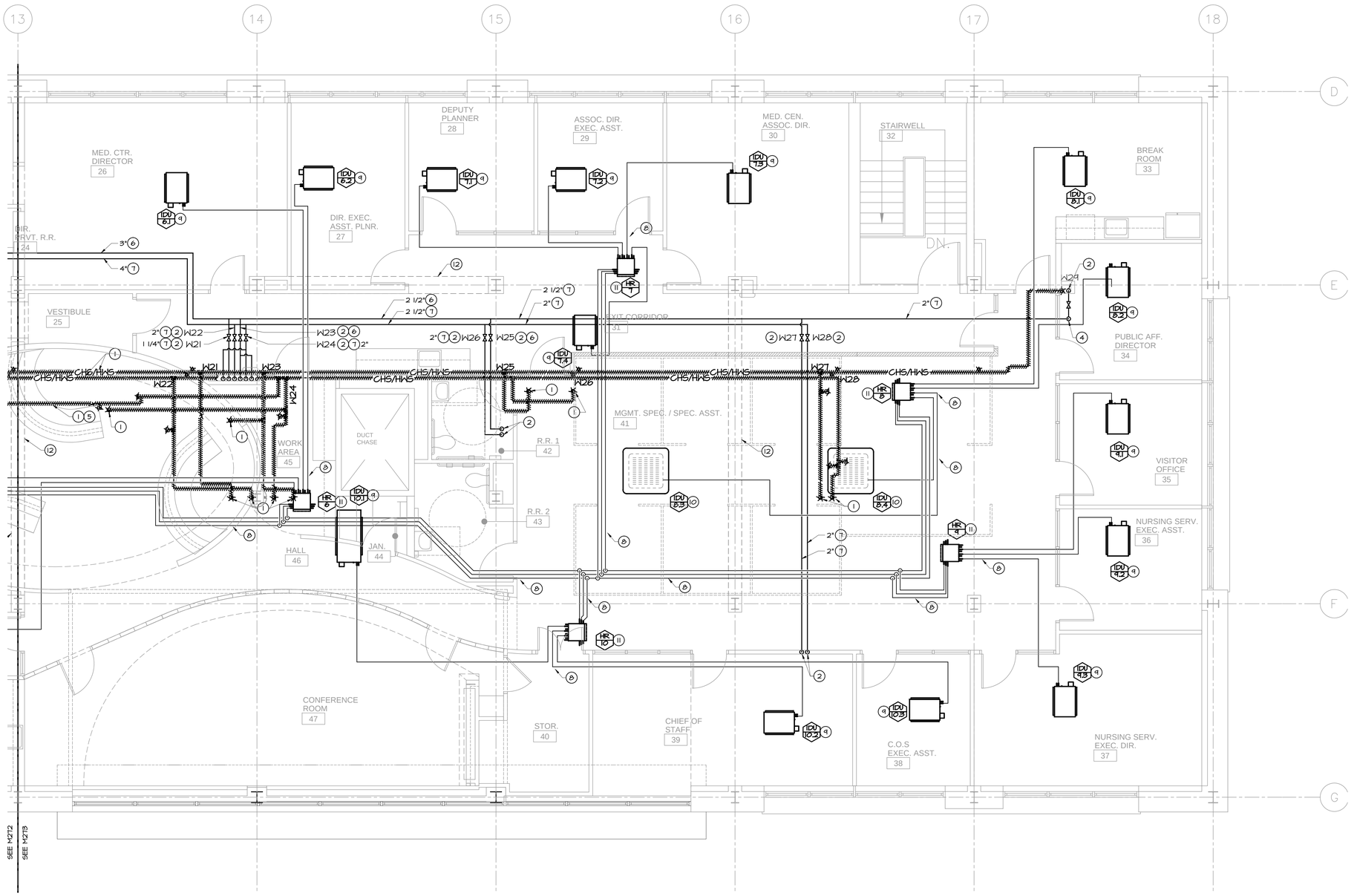
Drawing Number: M272

Dwg. 27 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



7TH FLOOR PIPING PARTIAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

1

KEYNOTES

1. REMOVE (E) PIPE AS INDICATED AND PROVIDE CAP ON (E) ZONE PIPING SUPPLY SERVING BELOW FLOORS. CAP TO BE LOCATED NEAR POC AS INDICATED. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.
2. NEW ZONE SUPPLY PIPE ROUTED TO NEW RISER LOCATION. PROVIDE S.O.V. AT BRANCH. CONTRACTOR TO FIELD COORDINATE EXACT LOCATION OF RISER WITH (E) AND/OR (N) WALL LAYOUT.
3. (E) ZONE SUPPLY RISER LOCATION TO BE ACCOMMODATED BY NEW ARCHITECTURAL LAYOUT ON 7TH FLOOR. NO WORK REQUIRED.
4. ROUTE LINE TO HIGHER ELEVATION TO ACCOMMODATE NEW CEILING LAYOUT. COORDINATE WITH ARCHITECTURAL PLANS FOR CONDITIONS.
5. FIELD VERIFY RISER SYSTEM. IF RISER IS ZONE SUPPLY THEN COORDINATE WITH ARCHITECT FOR NEW RISER LOCATION AND RE-ROUTING OPTIONS. IF NOT, THEN CAP BACK TO MAIN. COORDINATE SHUTDOWN WITH OWNER IF ISOLATION VALVE IS NOT PRESENT.
6. MATCH SIZE OF (N) PIPE TO SIZE OF (E) PIPE AT P.O.C.
7. (N) PIPE WITH SIZE INCREASED AS DIRECTED BY THE V.A.
8. REFER TO DETAIL 20/M600 FOR PIPE SIZING
9. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
10. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
11. SUSPENDED HEAT RECOVERY BOX MOUNTED ABOVE CEILING PER DETAIL 15/M601.
12. OUTLINE OF CRITICAL LOW BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

GENERAL NOTES

1. ALL SHUTDOWNS OF EXISTING SYSTEMS TO BE COORDINATED WITH OWNER TO LIMIT OPERATIONAL IMPACT. CONTRACTOR SHALL FIELD VERIFY ALL SYSTEMS AND THEIR POTENTIAL SHUT DOWN IMPACT PRIOR TO REMOVAL.
2. PIPES ROUTED WITHIN WALLS AND CONCEALED SPACED HAVING INSULATION HAVE BEEN IDENTIFIED TO CONTAIN ASBESTOS. CONTRACTOR TO COORDINATE WITH ABATEMENT SURVEY FOR POTENTIAL IMPACTS.
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KEY PLAN

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CONSTRUCTION DOCUMENT SUBMITTAL (95%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. SCHLUNDT M35955 Exp. 06-30-14 MECHANICAL STATE OF CALIFORNIA

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: 7TH FLOOR PIPING PARTIAL PLAN

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-15-202

Building Number: 1

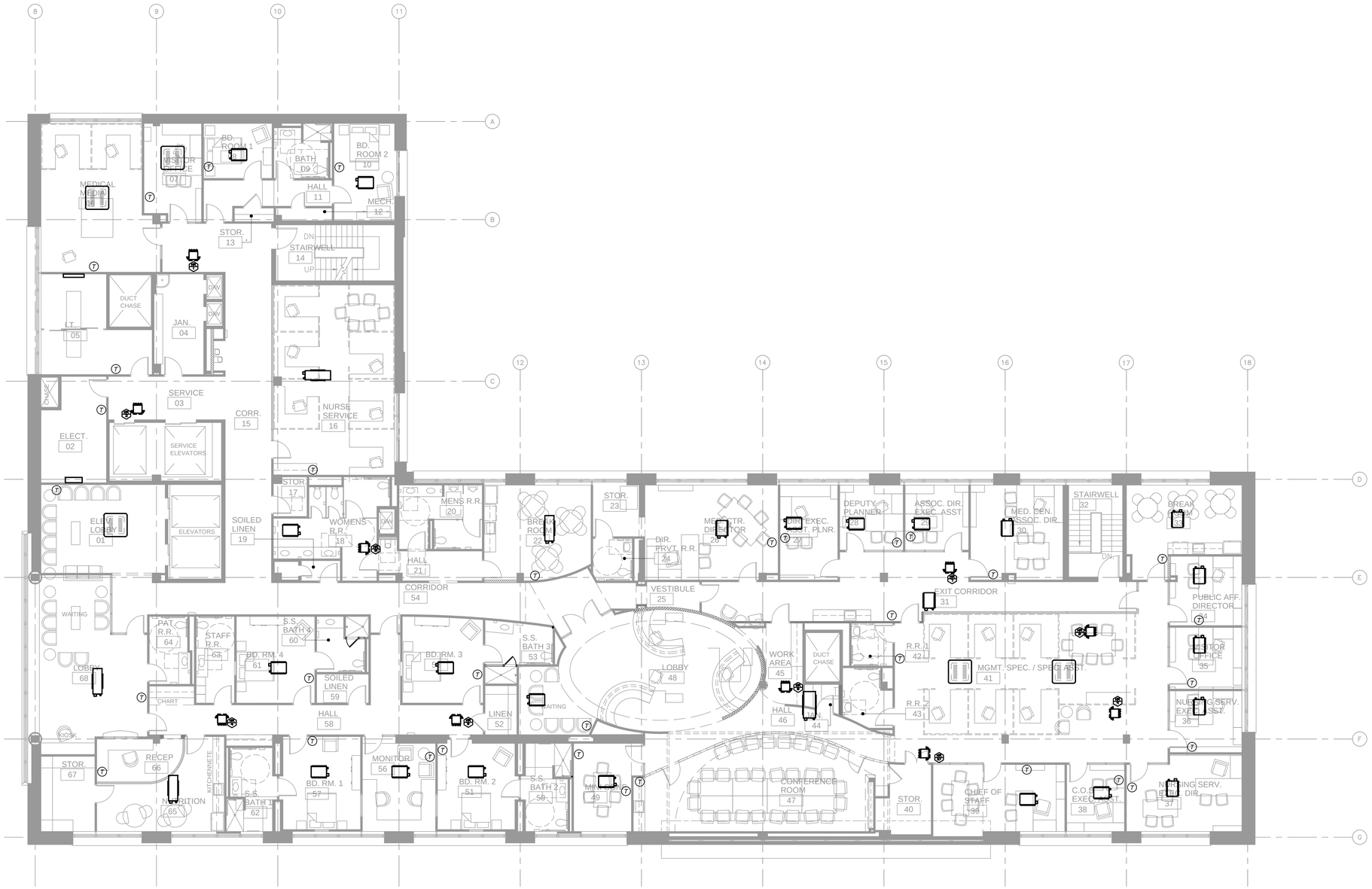
Drawing Number: M273

Dwg. 28 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

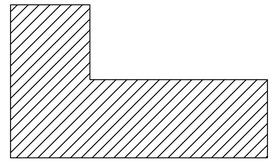


7TH FLOOR PLAN

SCALE: 1/8" = 1'-0"

1

KEY PLAN



Revisions:	Date
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DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

ARCHITECT/ENGINEERS:

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: HVAC COORDINATION WITH FURNITURE

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Project Number: 570-13-202

Building Number: 1

Approved: Project Director

Location: FRESNO, CA

Date: 4-30-14

Checked

Drawn

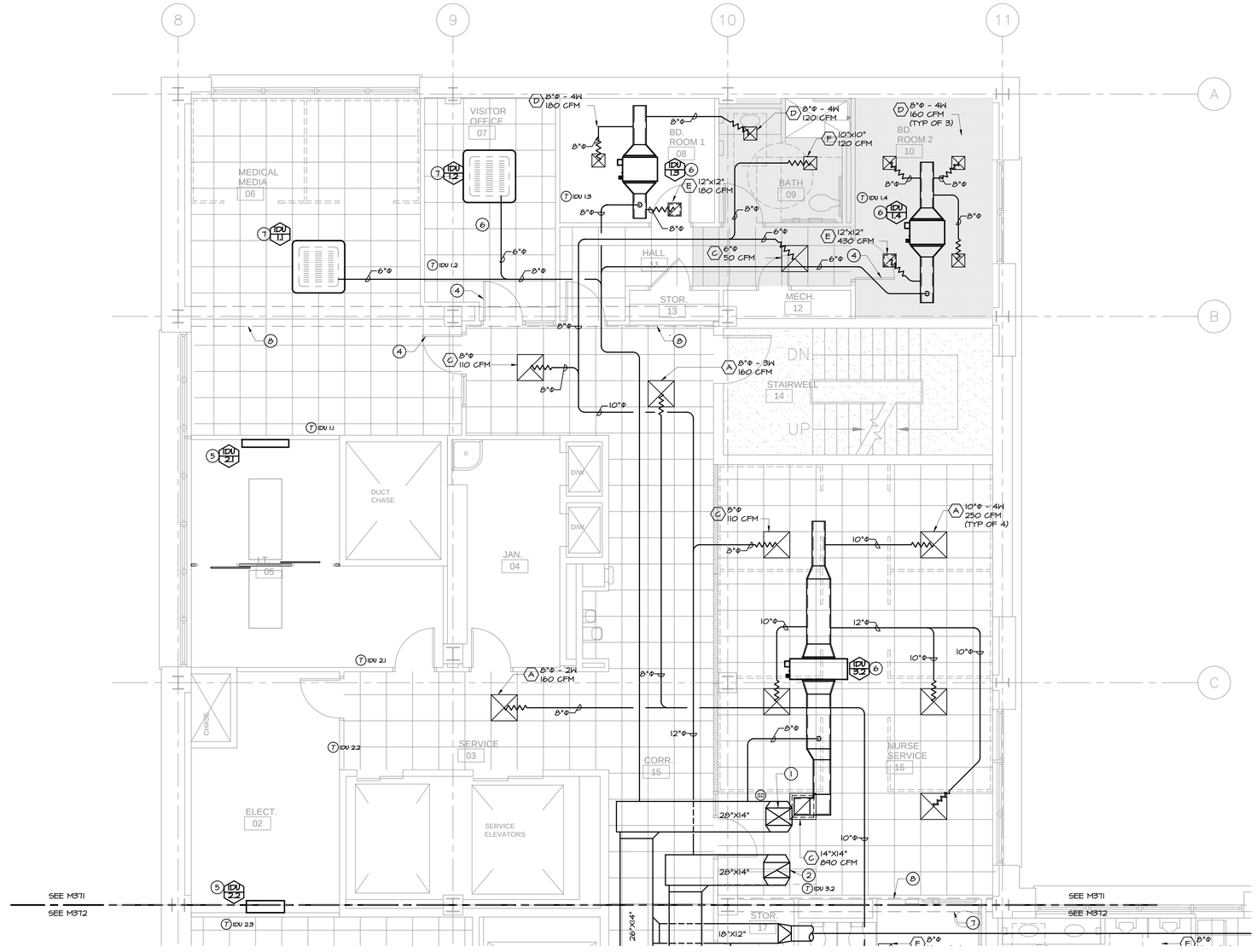
Drawing Number: M280

Dwg. 29 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



PARTIAL FLOOR PLAN - 7TH FLOOR

SCALE: 1/4" = 1'-0"

1

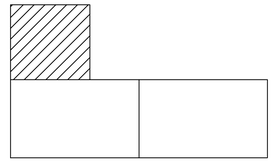
KEYNOTES

1. 24"X16" OSA DUCT UP THRU ROOF TO ERV-1.
2. 24"X14" EA DUCT UP THRU ROOF TO ERV.
3. NOT USED
4. DOOR TO BE UNDER-CUT AND SHALL MAINTAIN 3/4" MIN CLEARANCE. REFER TO ARCH.
5. IDU MOUNTED TO WALL WITH MOUNTING BRACKET PER DETAIL 12/M601. REFER TO DETAIL 10/M601 FOR UNIT CLEARANCES.
6. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
7. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
8. OUTLINE OF CRITICAL LON BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

GENERAL NOTES

1. COORDINATION OF WORK: LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY.
2. THE ACTUAL LOCATION OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL OR OTHER ELEMENTS.
3. VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.
4. ALL DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR THE OWNER REPRESENTATIVE.
5. EXISTING PIPING IS SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. INFORMATION OF (E) UTILITIES IS BASED UPON EXISTING DRAWINGS AND OWNER'S BEST KNOWLEDGE. EXISTING INFORMATION SHOWN MAY NOT BE TAKEN AS COMPREHENSIVE, AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN.
6. PROVIDE ALL DUCT TRANSITION PIECES AND FITTINGS REQUIRED TO ACCOMMODATE MECHANICAL EQUIPMENT CONNECTIONS, STRUCTURE, ARCHITECTURAL ELEMENTS, AND CHANGES IN DUCT SIZES.

KEY PLAN



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DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. SCHLUNDT M35955 Exp. 06-30-14 MECHANICAL STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: 7TH FLOOR PARTIAL FLOOR PLAN

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-13-202

Building Number: 1

Drawing Number: M371

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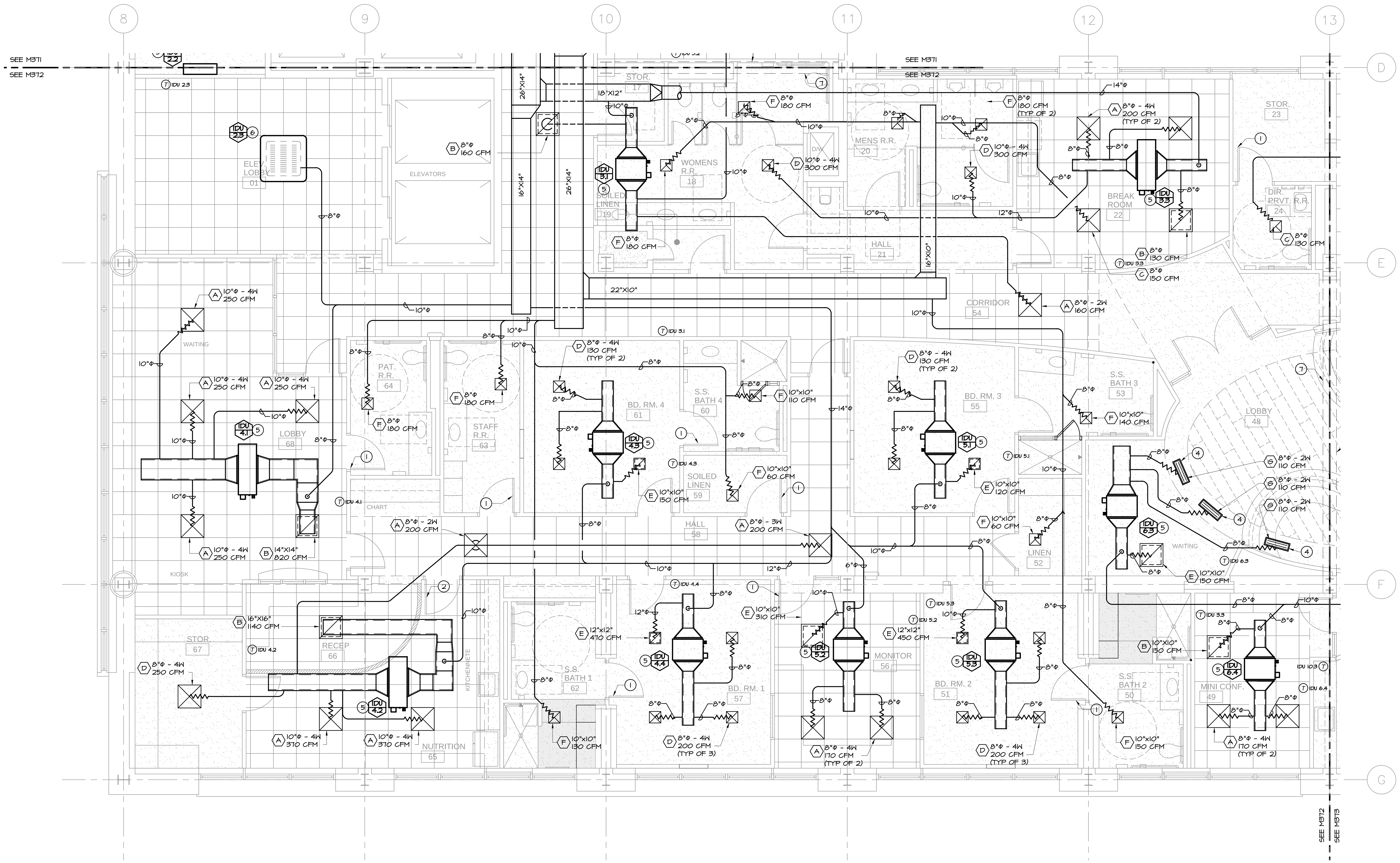
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



PARTIAL FLOOR PLAN - 7TH FLOOR

SCALE: 1/4" = 1'-0"

1

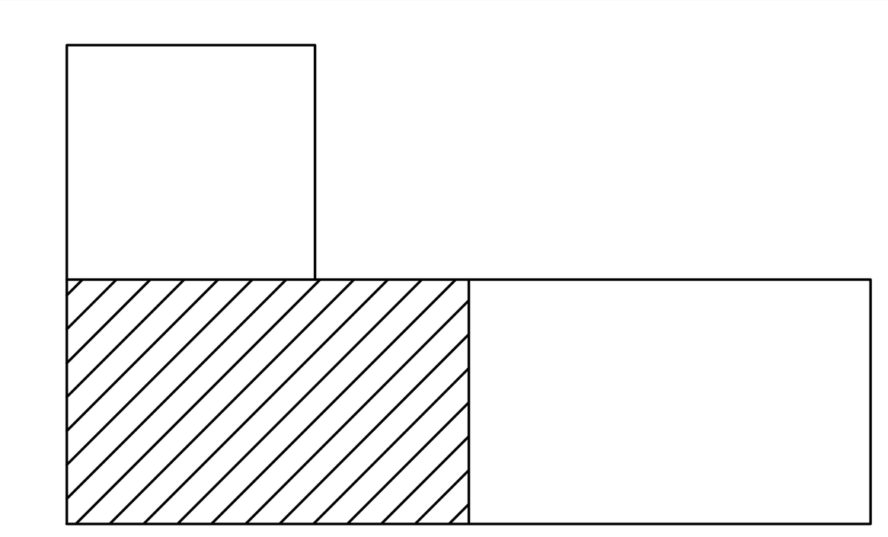
KEYNOTES

1. DOOR TO BE UNDER-CUT AND SHALL MAINTAIN 3/4" MIN CLEARANCE. REFER TO ARCH.
2. PROVIDE 12"X10" LOUVER IN DOOR
3. NOT USED
4. SUPPLY PLENUM TO FIT WITHIN SOFFIT FOR SUPPLY INTO SPACE.
5. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
6. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
7. OUTLINE OF CRITICAL LOW BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

GENERAL NOTES

1. COORDINATION OF WORK: LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY.
2. THE ACTUAL LOCATION OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED, PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL OR OTHER ELEMENTS.
3. VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.
4. ALL DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR THE OWNER REPRESENTATIVE.
5. EXISTING PIPING IS SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. INFORMATION OF (E) UTILITIES IS BASED UPON EXISTING DRAWINGS AND OWNER'S BEST KNOWLEDGE. EXISTING INFORMATION SHOWN MAY NOT BE TAKEN AS COMPREHENSIVE, AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN.
6. PROVIDE ALL DUCT TRANSITION PIECES AND FITTINGS REQUIRED TO ACCOMMODATE MECHANICAL EQUIPMENT CONNECTIONS, STRUCTURE, ARCHITECTURAL ELEMENTS, AND CHANGES IN DUCT SIZES.

KEY PLAN



Revisions:	Date
CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (65%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. SCHLUNDT M35955 Exp. 06-30-14 MECHANICAL STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

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125 S. BRIDGE ST. 150 | VISALIA, CA 93291 | 559.625.5246
ARCHITECTS ENGINEERS CONNECTED

Drawing Title: 7TH FLOOR PARTIAL FLOOR PLAN

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-13-202

Building Number: 1

Drawing Number: M372

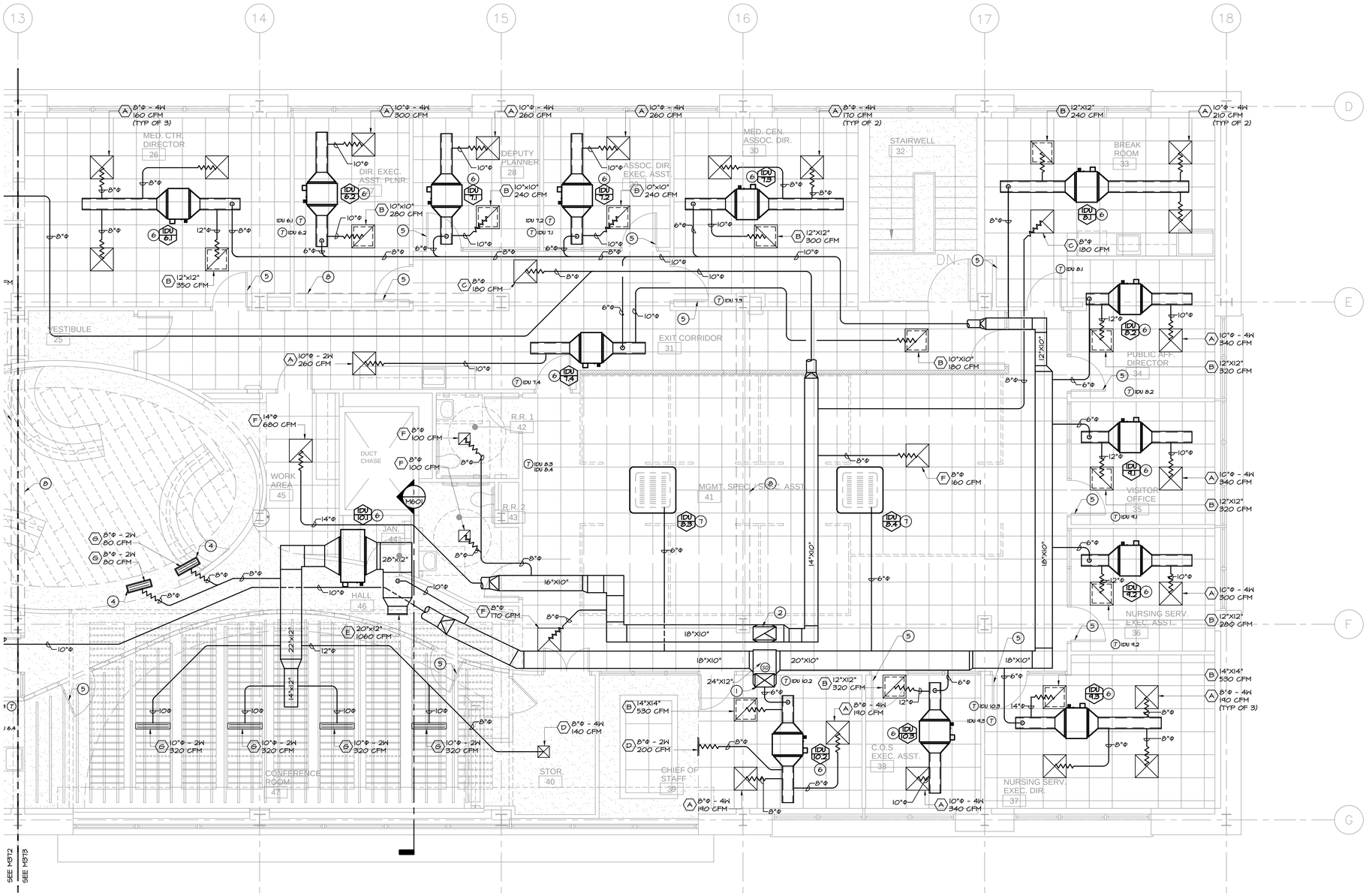
Dwg. 31 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

J:\91\9113.00 VA - 7th Floor TI\G-Project Drawings\Sheets\M\M372 7TH FLOOR PARTIAL FLOOR PLAN.dwg 5-01-14 10:23:36 AM jonathan.schlundt



PARTIAL FLOOR PLAN - 7TH FLOOR

SCALE: 1/4" = 1'-0"

1

KEYNOTES

1. 24"X16" OSA DUCT UP THRU ROOF TO ERV.
2. 24"X14" EA DUCT UP THRU ROOF TO ERV.
3. NOT USED
4. SUPPLY PLENUM TO FIT WITHIN SOFFIT FOR SUPPLY INTO SPACE.
5. DOOR TO BE UNDER-CUT AND SHALL MAINTAIN 3/4" MIN CLEARANCE. REFER TO ARCH.
6. SUSPENDED FC MOUNTED PER DETAIL 14/M601.
7. INDOOR SUSPENDED CEILING CASSETTE MOUNTED PER DETAIL 13/M601.
8. OUTLINE OF CRITICAL LOW BEAM WITH LIMITED SPACE DUE TO CEILING HEIGHT. CONTRACTOR TO COORDINATE WITH (E) BEAM LOCATIONS AND (N) CONDITIONS.

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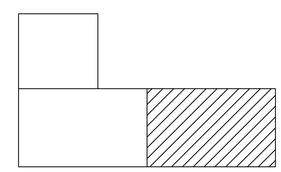

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CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (80%)	3-19-14
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SCHEMATIC DESIGN SUBMITTAL	12-4-13

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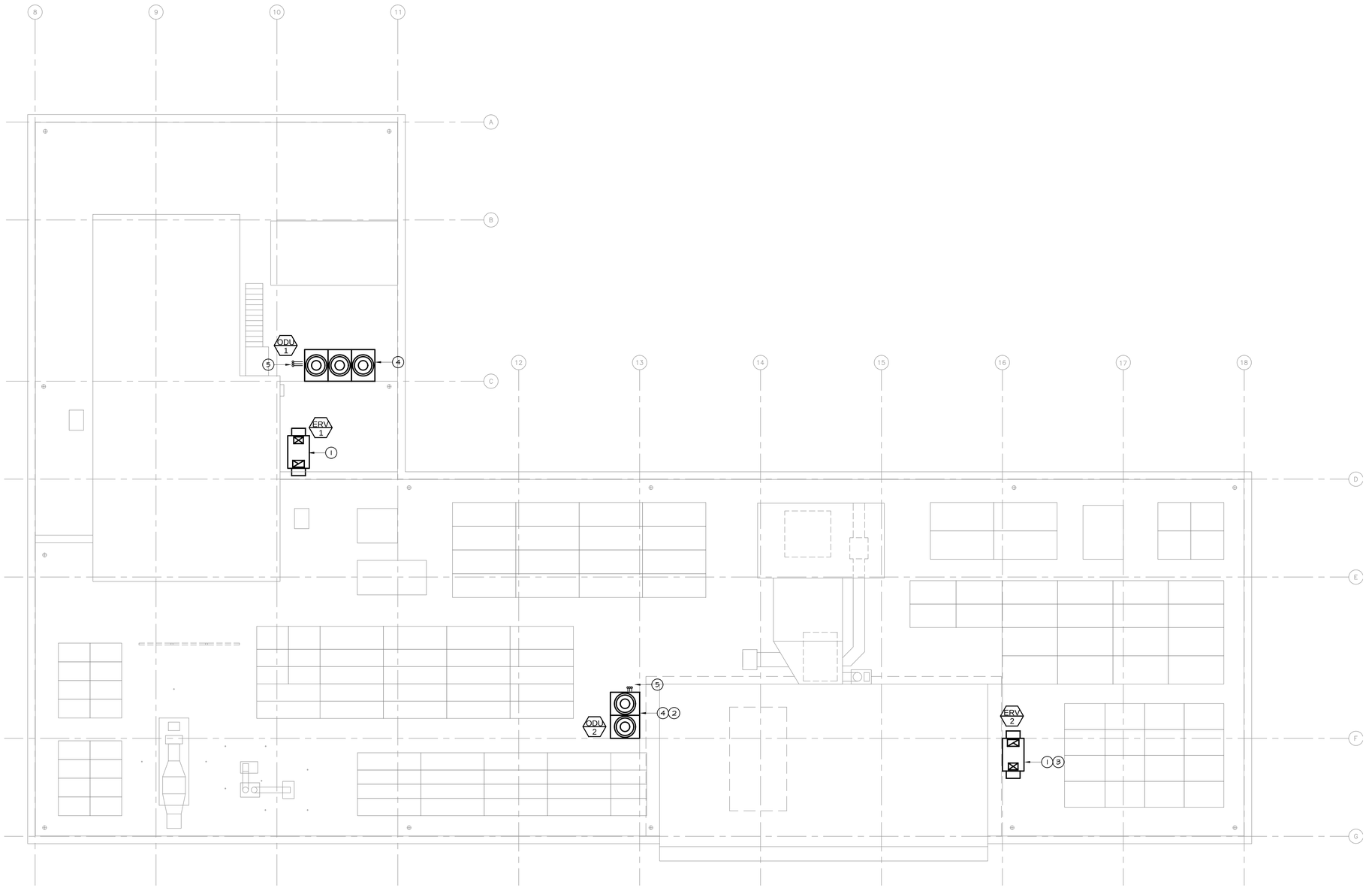
125 S. BRIDGE ST. 150 | VISALIA, CA 93291 | 559.625.5246
ARCHITECTS ENGINEERS CONNECTED

Drawing Title	7TH FLOOR PARTIAL FLOOR PLAN
Approved: Project Director	
Project Title	RENOVATE 7TH FLOOR BUILDING 1
Location	FRESNO, CA
Date	4-30-14
Checked	
Drawn	
Project Number	570-13-202
Building Number	1
Drawing Number	M373
Dwg. 32 of 52	

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



ROOF PLAN

SCALE: 1/8" = 1'-0"

1

KEYNOTES

1. ERV UNIT WITH IDUCT DXN THRU ROOF. COORDINATE DUCT SIZING AND ROOF OPENING PER MANUFACTURER RECOMMENDATIONS. MOUNT UNIT TO ROOF CURB PER DETAIL 2/M600.
2. REMOVE (E) ROOF SUPPORTS FROM PREVIOUS RTU IN LOCATION.
3. REMOVE (E) ROOF PLATFORM FROM PREVIOUS EF IN LOCATION.
4. ODU UNIT WITH REFRIGERANT PIPE DROPS THRU ROOF. REFER TO DETAILS 18/M600 AND 20/M600 FOR PIPE SIZES. MOUNT UNIT TO PLATFORM PER DETAIL 1/M600.
5. PIPE DROPS THRU ROOF. REFER TO DETAIL 12/M600 FOR PENETRATION DETAIL.

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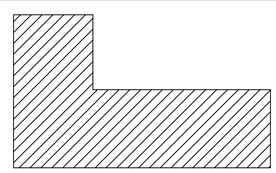
KEY PLAN



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ARCHITECTS ENGINEERS CONNECTED

Drawing Title: ROOF PLAN

Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1

Location: FRESNO, CA

Date: 4-30-14 | Checked | Drawn

Project Number: 570-15-202

Building Number: 1

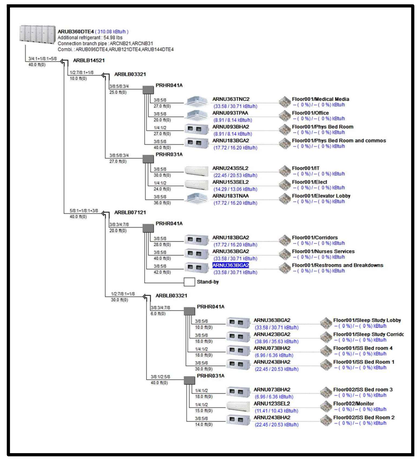
Drawing Number: M500

Dwg. 33 of 52

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

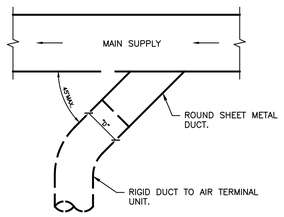


VRF PIPING SCHEMATIC FOR ODU-1 NTS 18

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

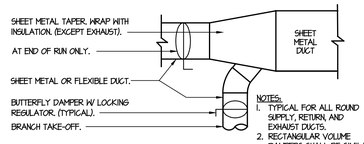
HANGER STRAPS OR RODS			
MAX. DUCT ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]

ROUND DUCT HANGERS 13

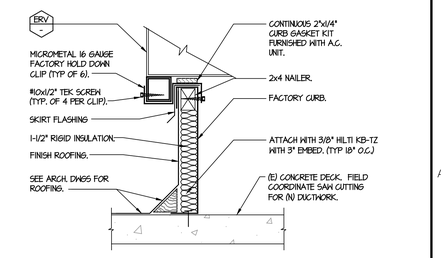


PLAN VIEW

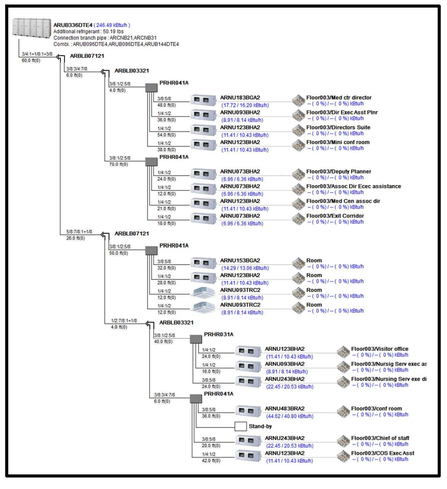
SUPPLY DUCT TAKEOFF NTS 9



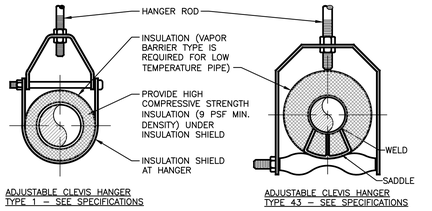
VOLUME DAMPER DETAIL NTS 5

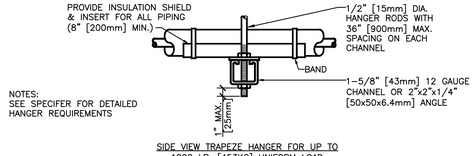


PACKAGE UNIT EQUIPMENT CURB SCALE: 1/4" = 1' 1



VRF PIPING SCHEMATIC FOR ODU-2 NTS 20



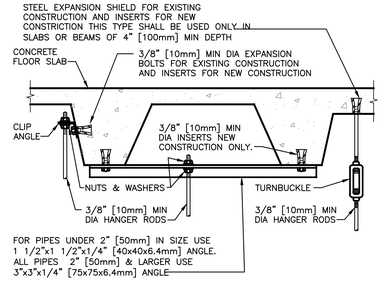


NOTES:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

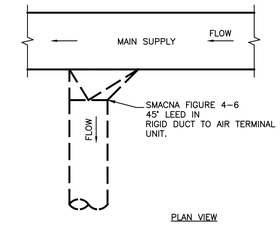
MAXIMUM PIPE/TUBING SUPPORT SPACING									
NOM. SIZE	IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
	[mm]	THRU [20]	[25]	[32]	[40]	[50]	[65]	[75]	[100]
PIPE	FT.	7	7	7	9	10	11	12	14
	[mm]	[2100]	[2100]	[2100]	[2700]	[3000]	[3400]	[3700]	[4100]
TUBING	FT.	5 FT	6	7	8	8	9	10	12
	[mm]	[1500]	[1800]	[2100]	[2400]	[2400]	[2700]	[3000]	[3700]

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

PIPE HANGERS NTS 16

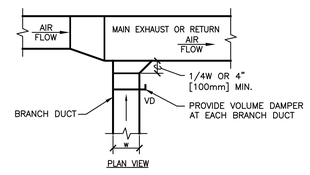


SECURING HANGER RODS IN CONCRETE 14



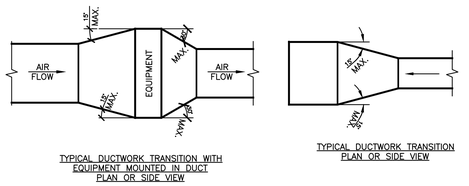
PLAN VIEW

ALTERNATE SUPPLY DUCT TAKEOFF NTS 10



PLAN VIEW

EXHAUST OR RETURN BRANCH DUCTWORK NTS 11

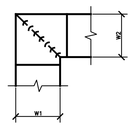


TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT
PLAN OR SIDE VIEW

TYPICAL DUCTWORK TRANSITION
PLAN OR SIDE VIEW

NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

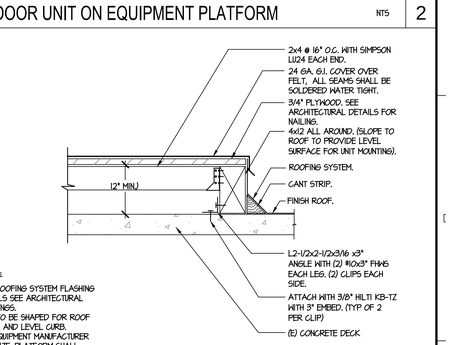
DUCTWORK TRANSITIONS NTS 6



NOTE:

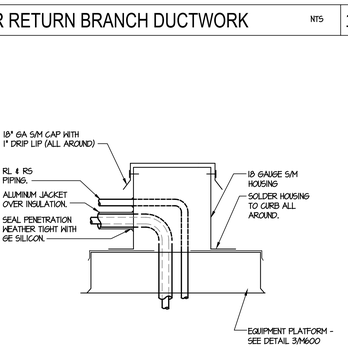
1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

DUCTWORK SQUARE VANE ELBOWS NTS 7



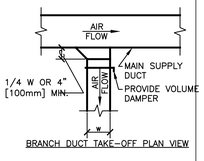
NOTES:
1. FOR ROOFING SYSTEM FLASHING DETAILS SEE ARCHITECTURAL DRAWINGS.
2. 4X12 TO BE SHAPED FOR ROOF SLOPE AND LEVEL CURB.
3. SEE EQUIPMENT MANUFACTURER FOR SIZE. PLATFORM SHALL EXTEND MIN. 6" BEYOND EQUIPMENT.

EQUIPMENT PLATFORM NTS 3



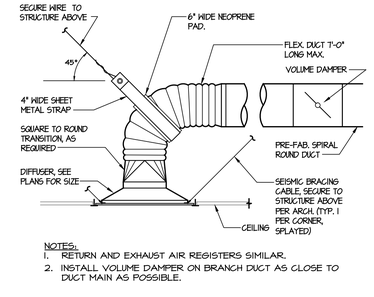
NOTES:
1. THE SUPPLY REGISTER TAKE-OFF MAY BE USED FOR UP UP TO 25% OF THE MAIN DUCT CFM. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM [5.1 M/S] OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES AND MAY BE USED AT ANYTIME.

REFRIGERANT PIPE ROOF PENETRATION NTS 12



BRANCH DUCT TAKE-OFF PLAN VIEW

SUPPLY DUCTWORK TAKE-OFFS NTS 8



NOTES:
1. RETURN AND EXHAUST AIR REGISTERS SIMILAR.
2. INSTALL VOLUME DAMPER ON BRANCH DUCT AS CLOSE TO DUCT MAIN AS POSSIBLE.

FLEXIBLE AIR DUCT CONNECTOR NTS 4

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SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

M35955
Exp. 06-30-14
REGISTERED PROFESSIONAL ENGINEER
JONATHAN C. SCHLUNDT
MECHANICAL
STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

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ARCHITECTS ENGINEERS CONNECTED

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Project Title	RENOVATE 7TH FLOOR BUILDING 1
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Project Number	570-13-202
Building Number	1
Drawing Number	M600
Dwg.	34 of 52

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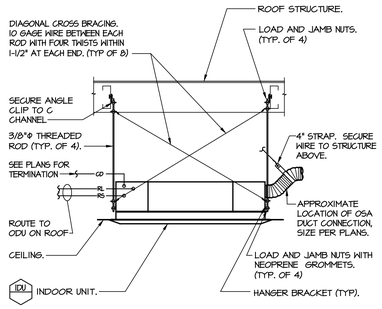
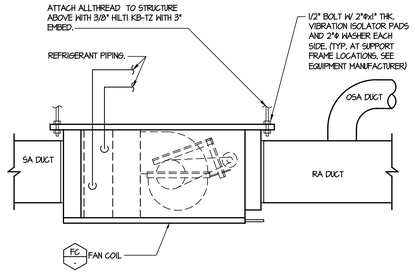


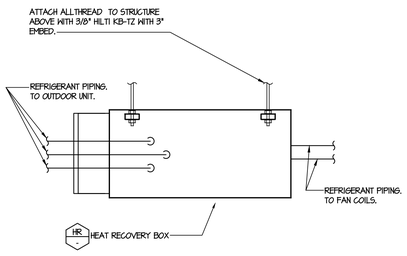
INDOOR UNIT - CEILING CASSETTE

NTS 13



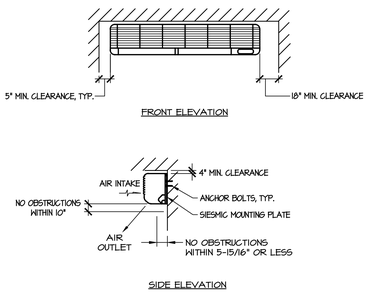
FAN COIL (SUSPENDED)

NTS 14



HEAT RECOVERY BOX

NTS 15

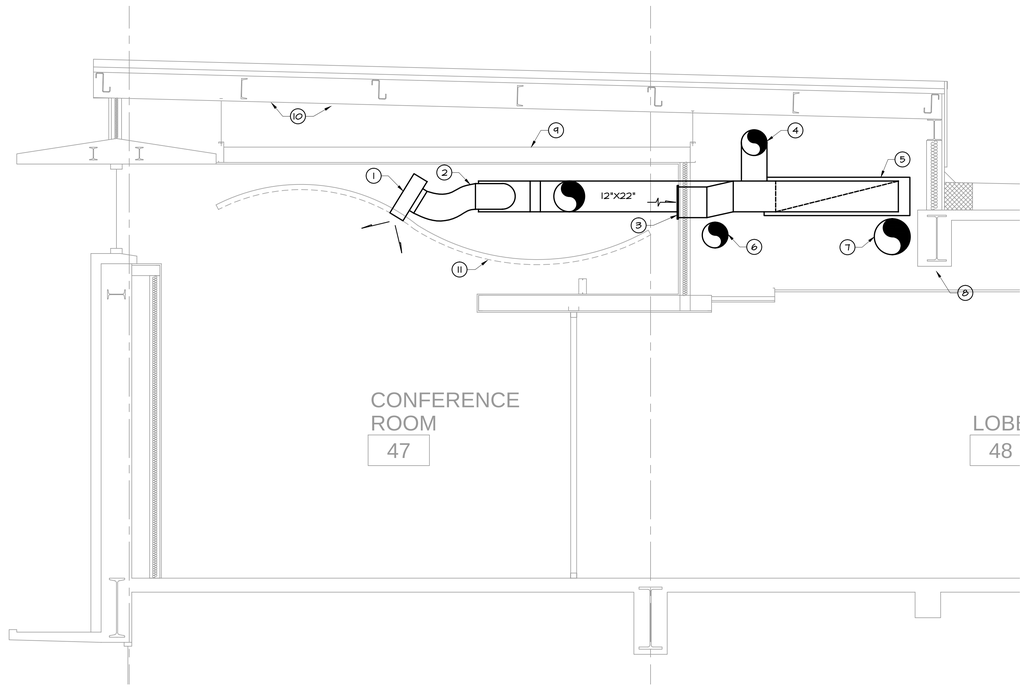


WALL FAN COIL CLEARANCE

NTS 16

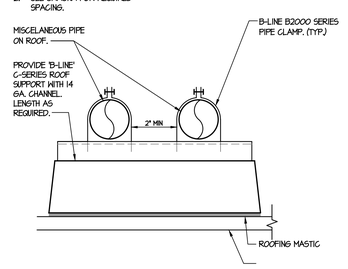
KEYNOTES

1. SHEET METAL SUPPLY PLENUM FOR LINEAR DIFFUSER WITH 10" COLLAR. COORDINATE LOCATION AND ANGLE OF PLENUM WITH SUSPENDED CEILING SYSTEM.
2. FLEX DUCT
3. SIDE WALL RETURN GRILLE. SIZED PER PLAN.
4. 10" OSA DUCT CONNECTED TO RETURN AIR PLENUM.
5. (N) FAN COIL UNIT PER PLAN.
6. 10" OSA DUCT PASS THRU. REFER TO PLAN FOR ROUTING.
7. 14" EXHAUST AIR DUCT PASS THRU. REFER TO PLAN FOR ROUTING.
8. (E) CONCRETE/STEEL BEAM
9. GYP. BD. CEILING ON MTL. JOISTS PER REFL. CLG. PLAN
10. EXST. STEEL ROOF FRAMING & DECKING W/ NEW SPRAY-ON FIREPROOFING
11. NEW METAL SUSPENDED CEILING



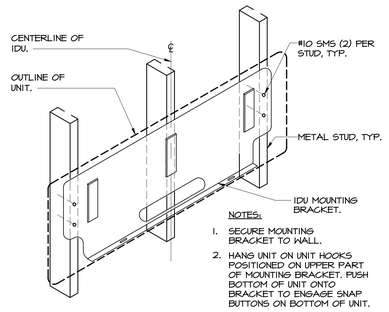
SECTION

NTS 1



PIPE SUPPORT ON ROOF

NTS 11



IDU MOUNTING BRACKET

NTS 12

GENERAL NOTES

1. CONTROLS INSTALLER SHALL BE LG CERTIFIED AND TRAINED PRIOR TO INSTALLATION.
2. CONTROLS CONTRACTOR TO PROVIDE COMPLETE LG AC SMART SYSTEM FOR ALL EQUIPMENT HVAC EQUIPMENT INCLUDING BUT LIMITED TO IDUS, ODUS, AND HR'S AS NECESSARY TO MEET DESIGN INTENT. SYSTEM TO INCLUDE, BUT NOT LIMIT TO, BUILDING LEVEL CONTROLLERS, UNITARY CONTROLLERS, WIRING, ELECTRICAL POWER AND CONDUIT AS NEEDED FOR A FULL OPERATING SYSTEM. COORDINATE WITH ELECTRICAL CONTRACTOR AND MECHANICAL CONTRACTOR.
3. CONTROLS CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR REGARDING THE CONNECTION AND INTERLOCKING OF THE ERV'S THROUGH BACNET/IP PROTOCOLS.
4. FOR SPECIFIC EQUIPMENT CONTROL PARAMETERS REFER TO DIVISION 25 OF THE SPECIFICATIONS.
5. CONTROLS CONTRACTOR SHALL PROVIDE BACNET TRANSLATOR FOR OUTPUT AND COMMUNICATION TO (E) CAMPUS JOHNSON METASYS SYSTEM SUPERVISORY CONTROLLER.
6. ODU-1 AND ODU-2 SHALL BE CAPABLE OF INDEPENDENT OPERATION.
7. ODU-1 SHALL BE INTERLOCKED WITH ERV-1 FOR SCHEDULED OPERATION. REFER TO SEQUENCE OF OPERATIONS.
8. ODU-2 SHALL BE INTERLOCKED WITH ERV-2 FOR SCHEDULED OPERATION. REFER TO SEQUENCE OF OPERATIONS.

SEQUENCE OF OPERATIONS

VRF SYSTEM (WITH ERV INTERLOCK)

1. OCCUPIED/UNOCCUPIED COMMANDS SHALL BE ISSUED FROM FRONT- END SUPERVISORY CONTROLLER SCHEDULES AND MANUAL COMMANDS. LOCAL OCCUPIED OVERRIDE COMMANDS SHALL BE FROM LOCAL THERMOSTATS AND SHALL OVERRIDE UNOCCUPIED MODE FOR 1 HOUR.
2. OCCUPIED MODE - ENERGY RECOVERY VENTILATORS SHALL REMAIN IN OPERATION AT ALL TIMES WHEN SPACE IS OCCUPIED TO MEET VENTILATION NEEDS. FAN SHALL ENERGIZE. CURRENT SENSING SWITCH SHALL PROVE FAN AND ALLOW HEATING AND COOLING FUNCTIONS TO OPERATE. IF CURRENT SENSOR DOES NOT PROVE FAN WITHIN 60 SECONDS, THE SYSTEM SHALL ALARM "FAN FAILURE" TO FRONT END SYSTEM.
3. COOLING MODE - DURING OCCUPIED MODE IF TEMPERATURE RISES ABOVE THE OCCUPIED SETPOINT, THE COOLING SHALL ENERGIZE AS NEEDED TO SATISFY CONDITION. ROOM THERMOSTAT LEVER IS CAPABLE OF RAISING OR LOWERING THE OCCUPIED SETPOINT (AD.J) + OR - 5 DEGREES. IF COOLING HAS BEEN COMMANDED ON AND DISCHARGE AIR DOES NOT DROP BY 6 DEGREES (AD.J) IN FIVE MINUTES (AD.J), A "COOLING ALARM" MESSAGE SHALL BE SENT TO THE SUPERVISORY CONTROLLER.
4. HEATING MODE - DURING OCCUPIED MODE IF ROOM TEMPERATURE DROPS BELOW OCCUPIED SETPOINT, THE HEATING SHALL ENERGIZE AS NEEDED TO SATISFY CONDITION. ROOM THERMOSTAT LEVER IS CAPABLE OF RAISING OR LOWERING THE OCCUPIED SETPOINT (AD.J) + OR - 5 DEGREES. IF HEATING HAS BEEN COMMANDED ON AND DISCHARGE AIR DOES NOT RISE BY 6 DEGREES (AD.J) IN FIVE MINUTES (AD.J), A "HEATING ALARM" MESSAGE SHALL BE SENT TO THE SUPERVISORY CONTROLLER.
5. UNOCCUPIED MODE - FAN, HEATING AND COOLING SHALL BE OFF. IF ROOM TEMPERATURE RISES ABOVE UNOCCUPIED COOLING SETPOINT (AD.J) THE FAN SHALL ENERGIZE. AFTER PROVING FAN, THE COOLING SHALL ENERGIZE UNTIL UNOCCUPIED SETPOINT IS SATISFIED. FAN SHALL DE-ENERGIZE. IF ROOM TEMPERATURE DROPS BELOW UNOCCUPIED HEATING SETPOINT (AD.J) THE FAN SHALL ENERGIZE. UPON PROVING FAN THE HEATING SHALL ENERGIZE UNTIL UNOCCUPIED SETPOINT IS SATISFIED. FAN SHALL DE-ENERGIZE.

VRF SYSTEM (FOR IDU 2.1 AND IDU 2.2)

1. IDU 2.1 AND IDU 2.2 SHALL NOT BE INTERLOCKED WITH ERV AND SHALL BE CAPABLE OF INDEPENDENT OPERATION IN UNOCCUPIED MODE.
2. THESE UNIT SHALL ALWAYS BE LIVE BASED ON TEMPERATURE SET POINTS WITHOUT USE OF AN OCCUPANCY SENSOR OR COMMAND FROM FRONT END. UPON ACTIVATION THE SUPPLY FAN SHALL ENERGIZE AND PROVE. UPON PROVING THE FOLLOWING MODES OF OPERATION WILL HAPPEN.
3. MODES OF OPERATION.
   3.1. COOLING MODE. IF SPACE TEMPERATURE IS GREATER THAN THERMOSTAT SETPOINT THE VALVE SHALL MODULATE OPEN AS NEEDED TO SATISFY CONDITION.
   3.2. HEATING MODE. IF SPACE TEMPERATURE IS LESS THAN THERMOSTAT SETPOINT THE VALVE WILL MODULATE OPEN AS NEEDED TO SATISFY CONDITION.

CONTROLS NOTES, SEQUENCE OF OPERATION

NTS 2

Revisions:	Date
CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (65%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. SCHLUNDT M35955 Exp. 06-30-14 MECHANICAL STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

TETER

TETER, LLP
7535 N. PALM AVE. 201 | FRESNO, CA 93711 | 559.437.0887
125 S. BRIDGE ST. 150 | VISALIA, CA 93291 | 559.625.5246
ARCHITECTS ENGINEERS CONNECTED

Drawing Title: DETAILS
Approved: Project Director

Project Title: RENOVATE 7TH FLOOR BUILDING 1
Location: FRESNO, CA
Date: 4-30-14
Checked
Drawn

Project Number: 570-15-202
Building Number: 1
Drawing Number: M601
Dwg. 35 of 52

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

VA Hospital 7th Floor Renovation
2615 E. Clinton Ave
Fresno, Ca 93703

Project Designer:

Teter Architects & Engineers
7535 N. Palm Ave. Suite 201
Fresno, CA 93711
(559) 437-0887

Report Prepared by:

Teter Architects & Engineers
7535 N. Palm #201
Fresno, CA 93711
559-437-0887

TETER ARCHITECTS ENGINEERS CONNECTED

Job Number:

9113

Date:

3/17/2014

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2008 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 1 of 3) PERF-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: CA Climate Zone 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Relocatable - indicate ☐ specific climate zone ☐ all climates
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration

STATEMENT OF COMPLIANCE

This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to a Building using the performance compliance approach.

The documentation author hereby certifies that the documentation is accurate and complete.

Documentation Author
Name — Signature
Company: Teter Architects & Engineers — Date: 3/17/2014
Address: 7535 N. Palm #201 — Phone: 559-437-0887
City/State/Zip: Fresno, CA 93711

The Principal Designer hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the energy efficiency requirements contained in sections 110, 116 through 118, and 140 through 149 of Title 24, Part 6. Please check one:

ENV.	LTG.	MECH.	
☐	☐	☐	I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, mechanical engineer, electrical engineer, or I am a licensed architect.
☐	☐	☐	I affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code by section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
☐	☐	☐	I affirm that I am eligible under Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt pursuant to Business and Professions Code Sections 5537, 5538 and 6737.1.

Principal Envelope Designer
Name: Jonathan Schlundt, P.E. — Signature
Company: Teter Architects & Engineers — Date
Address: 7535 N. Palm Ave. Suite 201 — License #
City/State/Zip: Fresno, CA 93711 — Phone: (559) 437-0887

Principal Mechanical Designer
Name: Jonathan Schlundt, P.E. — Signature
Company: Teter Architects & Engineers — Date
Address: 7535 N. Palm Ave. Suite 201 — License #
City/State/Zip: Fresno, CA 93711 — Phone: (559) 437-0887

Principal Lighting Designer
Name — Signature
Company: Lighting Compliance Not In The Scope Of This Submittal — Date
Address — License #
City/State/Zip — Phone

INSTRUCTIONS TO APPLICANT COMPLIANCE & WORKSHEETS (check box if worksheets are included)

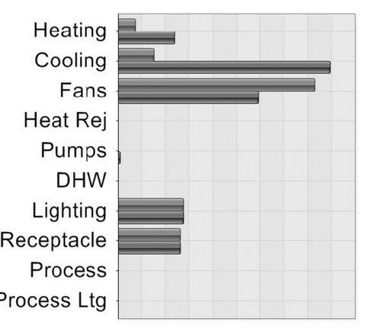
☑	ENV-1C	Certificate of Compliance. Required on plans.	☑	MECH-1C	Certificate of Compliance. Required on plans.
☐	LTG-1C	Certificate of Compliance. Required on plans.	☑	MECH-2C	Air/Water Side/Service Hot Water & Pool Requirements.
☐	LTG-2C	Lighting Controls Credit Worksheet.	☑	MECH-3C	Mechanical Ventilation and Reheat.
☐	LTG-3C	Indoor Lighting Power Allowance.	☑	MECH-5C	Mechanical Equipment Details.

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 2 of 3) PERF-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014

ANNUAL TDV ENERGY USE SUMMARY (kBtu/sqft-yr)

Energy Component	Standard Design	Proposed Design	Compliance Margin
Space Heating	47.88	14.87	33.01
Space Cooling	178.84	30.90	147.93
Indoor Fans	118.65	165.69	-47.04
Heat Rejection	0.00	0.00	0.00
Pumps & Misc.	2.20	0.03	2.16
Domestic Hot Water	0.00	0.00	0.00
Lighting	54.92	54.92	0.00
Receptacle	52.48	52.48	0.00
Process	0.73	0.73	0.00
Process Lighting	0.00	0.00	0.00
TOTALS	455.69	319.63	136.06
Percent better than Standard		29.9 %	(29.9 % excluding process)



NOT FOR PERMIT USE - SEE PART 3

GENERAL INFORMATION

Building Orientation	(N) 0 deg	Conditioned Floor Area	14,803 sqft.
Number of Stories	1	Unconditioned Floor Area	0 sqft.
Number of Systems	2	Conditioned Footprint Area	0 sqft.
Number of Zones	34	Natural Gas Available On Site	Yes

	Orientation	Gross Area	Glazing Area	Glazing Ratio
Front Elevation	(N)	2,702 sqft.	464 sqft.	17.2 %
Left Elevation	(E)	1,568 sqft.	240 sqft.	15.3 %
Rear Elevation	(S)	2,905 sqft.	539 sqft.	18.6 %
Right Elevation	(W)	1,715 sqft.	288 sqft.	16.8 %
Total		8,890 sqft.	1,531 sqft.	17.2 %
Roof		14,803 sqft.	0 sqft.	0.0 %

	Standard	Proposed	
Prescriptive Lighting Power Density	0.889 W/sqft.	0.889 W/sqft.	Prescriptive Values for Comparison only. See LTG-1C for allowed LPD.
Prescriptive Envelope TDV Energy	414,991	1,054,482	

Remarks:

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) PERF-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014

ZONE INFORMATION

System Name	Zone Name	Occupancy Type	Floor Area (sqft.)	Inst. LPD (W/sf)[1]	Ctrl. Credits (W/sf)[2]	Allowed LPD Area (W/sf)[3]	Allowed LPD Tailored (W/sf)[4]	Proc. Loads (W/sf)
CU-1	IDU-1.1	Office > 250 sqft	455	*0.900				
	IDU-1.2	Office > 250 sqft	245	*0.900				
	IDU-1.3	Office > 250 sqft	200	*0.900				
	IDU-1.4	Office > 250 sqft	289	*0.900				
	IDU-2.1	Electrical, Mechanical Room	250	*0.700				
	IDU-2.2	Electrical, Mechanical Room	192	*0.700				1.000
	IDU-2.3	Lobby, Main Entry	350	*1.500				
	IDU-3.1	Corridor/Restroom/Support	1,685	*0.600				
	IDU-3.2	Office > 250 sqft	722	*0.900				
	IDU-3.3	Office > 250 sqft	850	*0.900				
	IDU-4.1	Lobby, Main Entry	538	*1.500				
	IDU-4.2	Corridor/Restroom/Support	1,028	*0.600				
	IDU-4.3	Office > 250 sqft	291	*0.900				
	IDU-4.4	Office > 250 sqft	323	*0.900				
	IDU-5.1	Office > 250 sqft	317	*0.900				
	IDU-5.2	Corridor/Restroom/Support	220	*0.600				
	IDU-5.3	Office > 250 sqft	322	*0.900				
CU-2	IDU-6.1	Office <= 250 sqft	510	*1.100				
	IDU-6.2	Office <= 250 sqft	165	*1.100				
	IDU-6.3	Corridor/Restroom/Support	1,265	*0.600				

Notes: 1. See LTG-1C (items marked with asterisk, see LTG-1-C by others) 2. See LTG-2C 3. See LTG-3C (by others) 4. See LTG-4C — Items above require special documentation

EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The local enforcement agency determines the adequacy of the justifications, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

The HVAC System CU-1 is being modeled as a Variable Refrigerant Flow system. This report may NOT be used for Title 24 permit purposes.

The HVAC System CU-2 is being modeled as a Variable Refrigerant Flow system. This report may NOT be used for Title 24 permit purposes.

The exceptional features listed in this performance approach application have specifically been reviewed. Adequate written justification and documentation for their use have been provided by the applicant.

Authorized Signature or Stamp ____________________

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) PERF-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014

ZONE INFORMATION

System Name	Zone Name	Occupancy Type	Floor Area (sqft.)	Inst. LPD (W/sf)[1]	Ctrl. Credits (W/sf)[2]	Allowed LPD Area (W/sf)[3]	Allowed LPD Tailored (W/sf)[4]	Proc. Loads (W/sf)
	IDU-6.4	Convention/Conference/Mee	165	*1.400				
	IDU-7.1	Office <= 250 sqft	123	*1.100				
	IDU-7.2	Office <= 250 sqft	123	*1.100				
	IDU-7.3	Office <= 250 sqft	265	*1.100				
	IDU-7.4	Corridor/Restroom/Support	550	*0.600				
	IDU-8.1	Corridor/Restroom/Support	280	*0.600				
	IDU-8.2	Office <= 250 sqft	150	*1.100				
	IDU-8.3	Office > 250 sqft	1,271	*0.900				
	IDU-9.1	Office <= 250 sqft	130	*1.100				
	IDU-9.2	Office <= 250 sqft	130	*1.100				
	IDU-9.3	Office <= 250 sqft	242	*1.100				
	IDU-10.1	Convention/Conference/Mee	737	*1.400				
	IDU-10.2	Office <= 250 sqft	300	*1.100				
	IDU-10.3	Office <= 250 sqft	120	*1.100				

Notes: 1. See LTG-1C (items marked with asterisk, see LTG-1-C by others) 2. See LTG-2C 3. See LTG-3C (by others) 4. See LTG-4C — Items above require special documentation

EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The local enforcement agency determines the adequacy of the justifications, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

The exceptional features listed in this performance approach application have specifically been reviewed. Adequate written justification and documentation for their use have been provided by the applicant.

Authorized Signature or Stamp ____________________

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
1	Roof	455	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
2	Wall	346	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
3	Wall	188	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
4	Roof	245	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
5	Wall	210	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
6	Roof	100	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
7	Wall	105	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
8	Roof	100	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
9	Wall	105	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
10	Roof	177	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
1	Window	288	(W)	1.190	Default	0.680	Default	☐	Existing	☐	☐
2	Window	464	(N)	1.190	Default	0.680	Default	☐	Existing	☐	☐
3	Window	128	(SE)	1.190	Default	0.680	Default	☐	Existing	☐	☐
4	Window	539	(S)	1.190	Default	0.680	Default	☐	Existing	☐	☐
5	Window	112	(E)	1.190	Default	0.680	Default	☐	Existing	☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
11	Wall	210	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
12	Wall	220	(SE)	0.680	None					4.3.6-H5	Existing	☐	☐
13	Roof	112	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
14	Roof	250	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
15	Wall	165	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
16	Roof	192	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
17	Wall	266	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
18	Roof	350	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
19	Wall	206	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
20	Roof	1,685	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
21	Roof	722	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
22	Wall	352	(SE)	0.680	None					4.3.6-H5	Existing	☐	☐
23	Roof	850	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
24	Wall	344	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
25	Roof	538	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
26	Wall	286	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
27	Roof	923	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
28	Wall	374	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
29	Wall	158	(W)	0.680	None					4.3.6-H5	Existing	☐	☐
30	Roof	105	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
31	Roof	210	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
32	Roof	81	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
33	Roof	223	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
34	Wall	148	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
35	Roof	100	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
36	Wall	88	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
37	Roof	210	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
38	Roof	107	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
39	Roof	220	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
40	Wall	158	(S)	0.680	None					4.3.6-H5	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
41	Roof	202	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
42	Wall	155	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
43	Roof	120	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
44	Wall	102	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
45	Roof	455	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
46	Wall	272	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
47	Roof	55	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
48	Wall	60	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
49	Roof	165	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
50	Wall	100	(N)	0.680	None					4.3.6-H5	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
51	Roof	1,265	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
52	Roof	165	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
53	Wall	100	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
54	Roof	123	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
55	Wall	130	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
56	Roof	123	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
57	Wall	106	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
58	Roof	265	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
59	Wall	176	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
60	Roof	550	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
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								☐		☐	☐
								☐		☐	☐
								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
61	Roof	280	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
62	Wall	232	(N)	0.680	None					4.3.6-H5	Existing	☐	☐
63	Wall	210	(E)	0.680	None					4.3.6-H5	Existing	☐	☐
64	Roof	150	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
65	Wall	136	(E)	0.680	None					4.3.6-H5	Existing	☐	☐
66	Roof	1,141	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
67	Roof	130	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
68	Roof	130	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
69	Wall	106	(E)	0.680	None					4.3.6-H5	Existing	☐	☐
70	Roof	130	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
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								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014
Project Address: 2615 E. Clinton Ave Fresno — Climate Zone: 13 — Total Cond. Floor Area: 14,803 — Addition Floor Area: n/a

GENERAL INFORMATION

Building Type: ☑ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☑ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☑ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS / INSULATION

Tag/ID	Assembly Type	Area (ft²)	Orientation N, E, S, W	U-Factor	Cavity R-Value	Exterior R-Value	Exterior Furring[3]	Interior R-Value	Interior Furring[3]	Joint Appendix 4	Condition Status	Pass	Fail[2]
71	Wall	122	(E)	0.680	None					4.3.6-H5	Existing	☐	☐
72	Roof	242	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
73	Wall	182	(E)	0.680	None					4.3.6-H5	Existing	☐	☐
74	Wall	232	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
75	Roof	737	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
76	Wall	640	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
77	Roof	300	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
78	Wall	254	(S)	0.680	None					4.3.6-H5	Existing	☐	☐
79	Roof	120	(N)	0.074	None	11.0	None			4.2.6-A7	Existing	☐	☐
80	Wall	115	(S)	0.680	None					4.3.6-H5	Existing	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID	Fenestration Type	Area (ft²)	Orientation N, E, S, W	Max U-Factor	U-Factor Source	Max (R)SHGC	SHGC Source	Overhang	Conditions Status	Pass	Fail[2]
								☐		☐	☐
								☐		☐	☐
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								☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-96.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014

ROOFING PRODUCT (COOL ROOFS)

(Note if the roofing product is not CRRC certified, this compliance approach cannot be used). Go to Overall Envelope Approach or Performance Approach.

CHECK APPLICABLE BOX BELOW IF EXEMPT FROM THE ROOFING PRODUCT "COOL ROOF" REQUIREMENTS:	Pass	Fail[1]	N/A
☐ Roofing compliance not required in Climate Zones 1 and16 with a Low-Sloped. 2:12 pitch or less.	☐	☐	☐
☐ Roofing compliance not required in Climate Zone 1 with a Steep-Sloped with less than 5 lb/ft². Greater than 2:12 pitch.	☐	☐	☐
☐ Low-sloped Wood framed roofs in Climate Zones 3 and 5 are exempted, solar reflectance and thermal emittance or SRI that have a U-factor of 0.039 or lower. See Opaque Surface Details roof assembly, Column H of ENV-2C.	☐	☐	☐
☐ Low-sloped Metal building roofs in Climate Zone 3 and 5 are exempted, solar relectance and thermal emittance or SRI that have a U-factor of 0.048 or lower. See Opaque Surface Details roof assembly below, Column H of ENV-2C.	☐	☐	☐
☐ The roof area covered by building integrated photovoltaic panels and building integrated solar thermal panels are exempted. Solar reflectance and thermal emittance or SRI, see spreadsheet calculator at www.energy.ca.gov/title24/	☐	☐	☐
☐ Roof constructions that have thermal mass over the roof membrane with a weight of at least 25 lb/ft² are exempt from the Cool Roof criteria below.	☐	☐	☐
☐ High-rise residential buildings and hotels and motels with low-sloped roofs in Climate Zones 1 through 9, 12 and 16 are exempted from the low-sloped roofing criteria.	☐	☐	☐

1. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CRRC Product ID Number[1]	Roof Slope ≤ 2:12	Roof Slope > 2:12	Product Weight < 5lb/ft²	Product Weight ≥ 5lb/ft²	Product Type[2]	Aged Solar Reflectance[3]		Thermal Emmitance	SRI[5]	Pass	Fail[6]
	☐	☐	☐	☐		☐ [4]				☐	☐
	☐	☐	☐	☐		☐ [4]				☐	☐
	☐	☐	☐	☐		☐ [4]				☐	☐
	☐	☐	☐	☐		☐ [4]				☐	☐
	☐	☐	☐	☐		☐ [4]				☐	☐
	☐	☐	☐	☐		☐ [4]				☐	☐

1. The CRRC Product ID Number can be obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php
2. Indicate the type of product is being used for the roof top, i.e. single-ply roof, asphalt roof, metal roof, etc.
3. If the Aged Reflectance is not available in the Cool Roof Rating Council's Rated Product Directory then use the Initial Reflectance value from the same directory and use the equation $(0.2+0.7(\rho_{initial} - 0.2)$ to obtain a calculated aged value. Where ρ is the Initial Solar Reflectance from the Cool Roof Rating Council's Rated Product Directory.
4. Check box if the Aged Reflectance is a calculated value using the equation above.
5. The SRI value needs to be calculated from a spreadsheet calculator at http://www.energy.ca.gov/title24/
6. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

To apply **Liquid Field Applied Coatings**, the coating must be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the coatings manufacturer and meet minimum performance requirements listed in §118(i)4. Select the applicable coating:

☐ Aluminum-Pigmented Asphalt Roof Coating ☐ Cement-Based Roof Coating ☐ Other ____________

Discrepancies:

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 3 of 3) ENV-1C

Project Name: VA Hospital 7th Floor Renovation — Date: 3/17/2014

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for Envelope Fenestrations system. The designer is required to check the acceptance tests and list all the fenestration products that require an acceptance test. If all the site-built fenestration of a certain type requires a test, list the different fenestration products and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately.

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or whenever new fenestration is installed in the building or space shall be certified as meeting the Acceptance Requirements. The ENV-2A form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the ENV-2A for each different fenestration product line must be provided to the owner of the building for their records.

Test Description: Fenestration Products Name or ID Requiring Testing or Verification	Area of like Products	ENV-2A Building Envelope Acceptance Test	Test Performed By:
		☐	
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Revisions:	Date
CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
CONSTRUCTION DOCUMENT SUBMITTAL (65%)	3-19-14
DESIGN DEVELOPMENT SUBMITTAL (35%)	2-14-14
SCHEMATIC DESIGN SUBMITTAL	12-4-13

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER JONANTHAN C. SCHLUNDT M35955 Exp. 06-30-14 MECHANICAL STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

TETER, LLP
7535 N. PALM AVE. 201 | FRESNO, CA 93711 | 559.437.0887
125 S. BRIDGE ST. 150 | VISALIA, CA 93291 | 559.625.5246
ARCHITECTS ENGINEERS CONNECTED

Drawing Title	Project Title	Project Number	
T–24	RENOVATE 7TH FLOOR BUILDING 1	510-13-202	Office of Construction and Facilities Management
		Building Number: 1	
Approved: Project Director	Location: FRESNO, CA	Drawing Number: M700	Department of Veterans Affairs
	Date: 4-30-14 — Checked — Drawn	Dwg. 36 of 52	

J:\91\9113.00 VA – 7th Floor TI\G-Project Drawings\Sheets\M\M700 T-24.dwg 5-01-14 10:24:14 AM jonathan.schlundt

VA FORM 08–6231

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 4) MECH-1C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

Project Address	Climate Zone	Total Cond. Floor Area	Addition Floor Area
2615 E. Clinton Ave Fresno	13	14,803	n/a

GENERAL INFORMATION

Building Type:	☒ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel Guest Room
☐ Schools (Public School)	☐ Relocatable Public School Bldg.	☒ Conditioned Spaces	☐ Unconditioned Spaces (affidavit)
Phase of Construction:	☐ New Construction	☐ Addition	☐ Alteration
Approach of Compliance:	☐ Component	☐ Overall Envelope TDV Energy	☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees:	0 deg		

HVAC SYSTEM DETAILS

Equipment[2]	Inspection Criteria	FIELD INSPECTION ENERGY CHECKLIST – Meets Criteria or Requirements: Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	CU-1	☐	☐
Equipment Type[3]:	Variable Ref. Flow	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	405,000 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	26.8 kW	☐	☐
Max Allowed Cooling Capacity[1]	360,000 Btu/hr	☐	☐
Cooling Efficiency[1]	10.0 kW	☐	☐
Duct Location/ R-Value	Attic, Ceiling Ins, vented / 8.0	☐	☐
When duct testing is required, submit **MECH-4A** & **MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

Equipment[2]	Inspection Criteria	FIELD INSPECTION ENERGY CHECKLIST: Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	CU-2	☐	☐
Equipment Type[3]:	Variable Ref. Flow	☐	☐
Number of Systems	1	☐	☐
Max Allowed Heating Capacity[1]	336,000 Btu/hr	☐	☐
Minimum Heating Efficiency[1]	24.4 kW	☐	☐
Max Allowed Cooling Capacity[1]	336,000 Btu/hr	☐	☐
Cooling Efficiency[1]	10.0 kW	☐	☐
Duct Location/ R-Value	Attic, Ceiling Ins, vented / 8.0	☐	☐
When duct testing is required, submit **MECH-4A** & **MECH-4-HERS**	No	☐	☐
Economizer	No Economizer	☐	☐
Thermostat	Setback Required	☐	☐
Fan Control	Constant Volume	☐	☐

1. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 4) MECH-1C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

Discrepancies:

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 3 of 4) MECH-1C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

Required Acceptance Tests

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for mechanical systems. The designer is required to check the applicable boxes by all acceptance tests that apply and listed all equipment that requires an acceptance test. If all equipment of a certain type requires a test, list the equipment description and the number of systems. The NA number designates the Section in the Appendix of the Nonresidential Reference Appendices Manual that describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately.

Building Departments:
Systems Acceptance: Before occupancy permit is granted for a newly constructed building or space, or a new space-conditioning system serving a building or space is operated for normal use, all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance.
Systems Acceptance: Before occupancy permit is granted. All newly installed HVAC equipment must be tested using the Acceptance Requirements.

The MECH-1C form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked. The equipment requiring testing, person performing the test (Example: HVAC installer, TAB contractor, controls contractor, PE in charge of project) and what Acceptance test must be conducted. The following checked-off forms are required for **ALL** newly installed equipment. In addition a Certificate of Acceptance forms shall be submitted to the building department that certifies plans, specifications, installation, certificates, and operating and maintenance information meet the requirements of §10-103(b) and Title-24 Part 6. The building inspector must receive the properly filled out and signed forms before the building can receive final occupancy.

TEST DESCRIPTION: Equipment Requiring Testing or Verification	Qty.	MECH-2A Outdoor Ventilation For VAV & CAV	MECH-3A Constant Volume & Single-Zone Unitary	MECH-4A Air Distribution Ducts	MECH-5A Economizer Controls	MECH-6A Demand Control Ventilation DCV	MECH-7A Supply Fan VAV	MECH-8A Valve Leakage Test	MECH-9A Supply Water Temp. Reset	MECH-10A Hydronic System Variable Flow Control	MECH-11A Automatic Demand Shed Control
LG ARUB360VT3	1	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒
LG ARUB336VT3	1	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒
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CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 4 of 4) MECH-1C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

TEST DESCRIPTION: Equipment Requiring Testing	Qty.	MECH-12A Fault Detection & Diagnostics for DX Units	MECH-13A Automatic Fault Detection & Diagnostics for Air & Zone	MECH-14A Distributed Energy Storage DX AC Systems	MECH-15A Thermal Energy Storage (TES) Systems	Test Performed By:
LG ARUB360VT3	1	☐	☐	☐	☐	
LG ARUB336VT3	1	☐	☐	☐	☐	
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AIR SYSTEM REQUIREMENTS (Part 1 of 2) MECH-2C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

	Indicate Air Systems Type (Central, Single Zone, Package, VAV, or etc…)			
Item or System Tags (i.e. AC-1, RTU-1, HP-1)		CU-1	CU-2	
Number of Systems		1	1	
	Indicate Page Reference on Plans or Schedule and indicate the applicable exception(s)			
MANDATORY MEASURES	T-24 Sections			
Heating Equipment Efficiency	112(a)	26.8 kW	24.4 kW	
Cooling Equipment Efficiency	112(a)	10.0 kW	10.0 kW	
HVAC Heat Pump Thermostat	112(b), 112(c)	n/a	n/a	
Furnace Controls/Thermostat	112(c), 115(a)	n/a	n/a	
Natural Ventilation	121(b)	No	No	
Mechanical Ventilation	121(b)	2,779 cfm	1,643 cfm	
VAV Minimum Position Control	121(c)	No	No	
Demand Control Ventilation	121(c)	No	No	
Time Control	122(e)	Programmable Switch	Programmable Switch	
Setback and Setup Control	122(e)	Setback Required	Setback Required	
Outdoor Damper Control	122(f)	Auto	Auto	
Isolation Zones	122(g)	n/a	n/a	
Pipe Insulation	123			
Duct Location/ R-value	124	Attic, Ceiling Ins, vented / 8.0	Attic, Ceiling Ins, vented / 8.0	
PRESCRIPTIVE MEASURES				
Calculated Design Heating Load	144(a & b)	n/a	n/a	
Proposed Heating Capacity	144(a & b)	354,639 Btu/hr	294,219 Btu/hr	
Calculated Design Cooling Load	144(a & b)	n/a	n/a	
Proposed Cooling Capacity	144(a & b)	263,057 Btu/hr	235,241 Btu/hr	
Fan Control	144(c)	Constant Volume	Constant Volume	
DP Sensor Location	144(c)			
Supply Pressure Reset (DDC only)	144(c)	Yes	Yes	
Simultaneous Heat/Cool	144(d)	No	No	
Economizer	144(e)	No Economizer	No Economizer	
Heat Air Supply Reset	144(f)	Constant Temp	Constant Temp	
Cool Air Supply Reset	144(f)	Constant Temp	Constant Temp	
Electric Resistance Heating[1]	144(g)			
Air Cooled Chiller Limitation	144(i)			
Duct Leakage Sealing. If Yes, a MECH-4-A must be submitted	144(k)	No	No	

1. Total installed capacity (MBtu/hr) of all electric heat on this project exclusive of electric auxiliary heat for heat pumps. If electric heat is used explain which exception(s) to §144(g) apply.

MECHANICAL VENTILATION AND REHEAT MECH-3C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

MECHANICAL VENTILATION (§121(b)2) — AREA BASIS (B–D), OCCUPANCY BASIS (E–G); REHEAT LIMITATION (§144(d)) — VAV MINIMUM (J–M)

A Zone/System	B Condition Area (ft²)	C CFM per ft²	D Min CFM By Area B X C	E Number Of People	F CFM per Person	G Min CFM by Occupant E X F	H REQ'D V.A. Max of D or G	I Design Ventilation Air CFM	J 50% of Design Zone Supply CFM	K B X 0.4 CFM / ft²	L Max. of Columns H, J, K, 300 CFM	M Design Minimum Air Setpoint	N Transfer Air
IDU-1.1	455	0.15	68				68	70					
IDU-1.2	245	0.15	37				37	40					
IDU-1.3	200	0.15	30				30	125					
IDU-1.4	289	0.15	43				43	50					
IDU-2.1	250	0.15	38				38	40					
IDU-2.2	192	0.15	29				29	30					
IDU-2.3	350	0.15	53				53	150					
IDU-3.1	1,685	0.15	253				253	320					
IDU-3.2	722	0.15	108				108	111					
IDU-3.3	850	0.15	128				128	850					
IDU-4.1	538	0.15	81				81	180					
IDU-4.2	1,028	0.15	154				154	252					
IDU-4.3	291	0.15	44				44	111					
IDU-4.4	323	0.15	48				48	130					
IDU-5.1	317	0.15	48				48	140					
			Totals						Column I Total Design Ventilation Air				

C	Minimum ventilation rate per Section §121, Table 121-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
I	Must be greater than or equal to H, or use Transfer Air (column N) to make up the difference.
J	Design fan supply CFM (Fan CFM) x 50%; or the design zone outdoor airflow rate per §121.
K	Condition area (ft²) x 0.4 CFM / ft²; or
L	Maximum of Columns H, J, K, or 300 CFM
M	This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M), Column H minus M.

MECHANICAL VENTILATION AND REHEAT MECH-3C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

A Zone/System	B Condition Area (ft²)	C CFM per ft²	D Min CFM By Area B X C	E Number Of People	F CFM per Person	G Min CFM by Occupant E X F	H REQ'D V.A. Max of D or G	I Design Ventilation Air CFM	J 50% of Design Zone Supply CFM	K B X 0.4 CFM / ft²	L Max. of Columns H, J, K, 300 CFM	M Design Minimum Air Setpoint	N Transfer Air
IDU-5.2	220	0.15	33				33	30					3
IDU-5.3	322	0.15	48				48	150					
CU-1						Total	1,242	2,779					
IDU-6.1	510	0.15	77				77	130					
IDU-6.2	165	0.15	25				25	20					5
IDU-6.3	1,265	0.15	190				190	190					
IDU-6.4	165	0.50	83				83	120					
IDU-7.1	123	0.15	18				18	20					
IDU-7.2	123	0.15	18				18	20					
IDU-7.3	265	0.15	40				40	40					
IDU-7.4	550	0.15	83				83	80					2
IDU-8.1	280	0.15	42				42	183					
IDU-8.2	150	0.15	23				23	20					3
IDU-8.3	1,271	0.15	191				191	300					
IDU-9.1	130	0.15	20				20	20					
			Totals						Column I Total Design Ventilation Air				

C	Minimum ventilation rate per Section §121, Table 121-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
I	Must be greater than or equal to H, or use Transfer Air (column N) to make up the difference.
J	Design fan supply CFM (Fan CFM) x 50%; or the design zone outdoor airflow rate per §121.
K	Condition area (ft²) x 0.4 CFM / ft²; or
L	Maximum of Columns H, J, K, or 300 CFM
M	This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M), Column H minus M.

MECHANICAL VENTILATION AND REHEAT MECH-3C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

A Zone/System	B Condition Area (ft²)	C CFM per ft²	D Min CFM By Area B X C	E Number Of People	F CFM per Person	G Min CFM by Occupant E X F	H REQ'D V.A. Max of D or G	I Design Ventilation Air CFM	J 50% of Design Zone Supply CFM	K B X 0.4 CFM / ft²	L Max. of Columns H, J, K, 300 CFM	M Design Minimum Air Setpoint	N Transfer Air
IDU-9.2	130	0.15	20				20	20					
IDU-9.3	242	0.15	36				36	40					
IDU-10.1	737	0.50	369				369	370					
IDU-10.2	300	0.15	45				45	50					
IDU-10.3	120	0.15	18				18	20					
CU-2						Total	1,295	1,643					
			Totals						Column I Total Design Ventilation Air				

C	Minimum ventilation rate per Section §121, Table 121-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed seating.
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
I	Must be greater than or equal to H, or use Transfer Air (column N) to make up the difference.
J	Design fan supply CFM (Fan CFM) x 50%; or the design zone outdoor airflow rate per §121.
K	Condition area (ft²) x 0.4 CFM / ft²; or
L	Maximum of Columns H, J, K, or 300 CFM
M	This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M), Column H minus M.

MECHANICAL EQUIPMENT DETAILS (Part 1 of 2) MECH-5C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

CHILLER AND TOWER SUMMARY

Equipment Name	Type	Qty.	Efficiency	Tons	PUMPS Qty.	GPM	BHP	Pump Control

DHW / BOILER SUMMARY

System Name	Type	Distribution	Qty.	Rated Input	Vol. (Gals).	Energy Factor or RE	Standby Loss or Pilot	Tank Ext. R-Value	Status

MULTI-FAMILY CENTRAL WATER HEATING DETAILS

Control	Hot Water Pump Qty.	HP	Type	Hot Water Piping Length (ft) In Plenum	Outside	Buried	Add ½" Insulation
							☐
							☐
							☐

CENTRAL SYSTEM RATINGS

System Name	Type	Qty.	HEATING Output	Aux. kW	Efficiency	COOLING Output	Efficiency	Status
LG ARUB360VT3	Variable Ref. Flow	1	405,000		26.8 kW	360,000	10.0 kW	New
LG ARUB336VT3	Variable Ref. Flow	1	336,000		24.4 kW	336,000	10.0 kW	New

CENTRAL SYSTEM FAN SUMMARY

System Name	Fan Type	Economizer Type	SUPPLY FAN CFM	BHP	RETURN FAN CFM	BHP
LG ARUB360VT3						
LG ARUB336VT3						

MECHANICAL EQUIPMENT DETAILS (Part 2 of 2) MECH-5C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

ZONE SYSTEM SUMMARY

Zone Name	System Name	Type	Qty.	Heating	Cooling	Min CFM Ratio	Reheat Coil	CFM	BHP	Fan Cycles	ECM Motor	Outside Air
IDU-1.1	1.1 - ARNU363TNC2	Variable Ref. Flow	1	40,600	33,580			742	0.19	☐	☐	Energy Recovery
IDU-1.2	1.2 - ARNU093TPAA	Variable Ref. Flow	1	10,900	8,900			390	0.04	☐	☐	Energy Recovery
IDU-1.3	1.3 - ARNU093BPA2	Variable Ref. Flow	1	10,900	8,900			300	0.04	☐	☐	Energy Recovery
IDU-1.4	1.4 - ARNU183BPA2	Variable Ref. Flow	1	21,500	17,700			477	0.21	☐	☐	Energy Recovery
IDU-2.1	2.1 - ARNU243BPA2	Variable Ref. Flow	1	27,300	22,500			459	0.20	☐	☐	No Economizer
IDU-2.2	2.2 - ARNU153BPA2	Variable Ref. Flow	1	17,100	14,300			424	0.20	☐	☐	No Economizer
IDU-2.3	2.3 - ARNU183TNAA	Variable Ref. Flow	1	21,500	17,700			388	0.21	☐	☐	Energy Recovery
IDU-3.1	3.1 - ARNU183BHA2	Variable Ref. Flow	1	21,500	17,700			477	0.21	☐	☐	Energy Recovery
IDU-3.2	3.2 - ARNU363BHA2	Variable Ref. Flow	1	40,600	33,600			1,024	0.60	☐	☐	Energy Recovery
IDU-3.3	3.3 - ARNU363BHA2	Variable Ref. Flow	1	40,600	33,600			1,024	0.60	☐	☐	Energy Recovery
IDU-4.1	4.1 - ARNU363BHA2	Variable Ref. Flow	1	40,600	33,600			1,024	0.60	☐	☐	Energy Recovery
IDU-4.2	4.2 - ARNU423BHA2	Variable Ref. Flow	1	40,600	33,600			1,434	0.60	☐	☐	Energy Recovery
IDU-4.3	4.3 - ARNU073BPA2	Variable Ref. Flow	1	8,500	7,000			265	0.20	☐	☐	Energy Recovery
IDU-4.4	4.4 - ARNU243BPA2	Variable Ref. Flow	1	27,300	22,500			597	0.20	☐	☐	Energy Recovery
IDU-5.1	5.1 - ARNU073BPA2	Variable Ref. Flow	1	8,500	7,000			265	0.20	☐	☐	Energy Recovery
IDU-5.2	5.2 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
IDU-5.3	5.3 - ARNU243BHA2	Variable Ref. Flow	1	27,300	22,500			597	0.20	☐	☐	Energy Recovery
IDU-6.1	6.1 - ARNU183BHA2	Variable Ref. Flow	1	21,500	17,700			477	0.21	☐	☐	Energy Recovery
IDU-6.2	6.2 - ARNU093TPAA	Variable Ref. Flow	1	10,900	8,900			300	0.04	☐	☐	Energy Recovery
IDU-6.3	6.3 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery

EXHAUST FAN SUMMARY

EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP
Medical Media	1.0	70	0.13	Elevator Lobby	1.0	150	0.28	Sleep Study Lobby	1.0	180	0.33
Spare Office	1.0	40	0.07	Corridor and Commons	1.0	320	0.46	Public Restroom	1.0	250	0.46
Restroom	1.0	120	0.22	Nurse Service	1.0	110	0.20	Private Restroom	1.0	110	0.20
Corridor	1.0	50	0.09	Mens/Womens/Breakroom	1.0	850	1.57	Private Restroom	1.0	130	0.24

MECHANICAL EQUIPMENT DETAILS (Part 2 of 2) MECH-5C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

ZONE SYSTEM SUMMARY

Zone Name	System Name	Type	Qty.	Heating	Cooling	Min CFM Ratio	Reheat Coil	CFM	BHP	Fan Cycles	ECM Motor	Outside Air
IDU-6.4	6.4 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
IDU-7.1	7.1 - ARNU073BPA2	Variable Ref. Flow	1	8,500	7,000			265	0.20	☐	☐	Energy Recovery
IDU-7.2	7.2 - ARNU073BPA2	Variable Ref. Flow	1	8,500	7,000			265	0.20	☐	☐	Energy Recovery
IDU-7.3	7.3 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
IDU-7.4	7.4 - ARNU073BPA2	Variable Ref. Flow	1	8,500	7,000			265	0.20	☐	☐	Energy Recovery
IDU-8.1	8.1 - ARNU153BPA2	Variable Ref. Flow	1	17,100	14,300			424	0.20	☐	☐	Energy Recovery
IDU-8.2	8.2 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
IDU-8.3	8.3 - ARNU243BHA2	Variable Ref. Flow	1	27,300	22,500			597	0.20	☐	☐	Energy Recovery
IDU-9.1	9.1 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
IDU-9.2	9.2 - ARNU093BPA2	Variable Ref. Flow	1	10,900	8,900			300	0.04	☐	☐	Energy Recovery
IDU-9.3	9.3 - ARNU243BHA2	Variable Ref. Flow	1	27,300	22,500			597	0.20	☐	☐	Energy Recovery
IDU-10.1	10.1 - ARNU483BHA2	Variable Ref. Flow	1	40,600	33,600			1,434	0.60	☐	☐	Energy Recovery
IDU-10.2	10.2 - ARNU243BHA2	Variable Ref. Flow	1	27,300	22,500			597	0.20	☐	☐	Energy Recovery
IDU-10.3	10.3 - ARNU123BPA2	Variable Ref. Flow	1	13,600	11,400			353	0.20	☐	☐	Energy Recovery
										☐	☐	
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										☐	☐	

EXHAUST FAN SUMMARY

EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP
Private Restroom	1.0	140	0.26	Dir. Exec Asst Plnr.	1.0	20	0.02	Assoc Dir. Exec. Asst.	1.0	20	0.02
Monitor Room	1.0	30	0.06	Director Suite Lobby	1.0	190	0.23	Assoc Director Office	1.0	4	0.05
Private Restroom	1.0	150	0.28	Mini Conference	1.0	120	0.15	Exit Corridor	1.0	80	0.10
Private Restroom	1.0	130	0.16	Deputy Planner	1.0	20	0.02	Breakroom	1.0	180	0.22

MECHANICAL EQUIPMENT DETAILS (Part 2 of 2) MECH-5C

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

ZONE SYSTEM SUMMARY

Zone Name	System Name	Type	Qty.	Heating	Cooling	Min CFM Ratio	Reheat Coil	CFM	BHP	Fan Cycles	ECM Motor	Outside Air
										☐	☐	

EXHAUST FAN SUMMARY

EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP	EXHAUST FAN Room Name	Qty.	CFM	BHP
Public Aff. Director	1.0	20	0.02	Nurse Exec Director Office	1.0	40	0.05				
Public Restrooms	1.0	300	0.37	Conference	1.0	370	0.45				
Visitor Office	1.0	20	0.02	Chief of Staff	1.0	50	0.06				
Nursing Serv. Exec. Asst.	1.0	20	0.02	Chief of Staff Assist	1.0	20	0.02				

ENVELOPE MANDATORY MEASURES: NONRESIDENTIAL ENV-MM

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

DESCRIPTION

Building Envelope Measures:

§118(a):	Installed insulating material shall have been certified by the manufacturer to comply with the California Quality Standards for insulating material, Title 20 Chapter 4, Article 3.
§118(c):	All Insulating Materials shall be installed in compliance with the flame spread rating and smoke density requirements of Sections 2602 and 707 of Title 24, Part 2.
§118(f):	The opaque portions of framed demising walls in nonresidential buildings shall have insulation with an installed R-value of no less than R-13 between framing members.
§117(a):	All Exterior Joints and openings in the building that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.
§116(a) 1:	Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft.² of window area, 0.3 cfm/ft.² of door area for residential doors, 0.3 cfm/ft.² of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft.² for nonresidential double doors (swinging).
§116(a) 2:	Fenestration U-factor shall be rated in accordance with NFRC 100, or the applicable default U-factor.
§116(a) 3:	Fenestration SHGC shall be rated in accordance with NFRC 200, or NFRC 100 for site-built fenestration, or the applicable default SHGC.
§116(b):	Site Constructed Doors, Windows and Skylights shall be caulked between the unit and the building, and shall be weatherstripped (except for unframed glass doors and fire doors).

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL MECH-MM

Project Name	Date
VA Hospital 7th Floor Renovation	3/17/2014

Equipment and System Efficiencies

§111:	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
§115(a):	Fan type central furnaces shall not have a pilot light.
§123:	Piping, except that conveying fluids at temperatures between 60 and 105 degrees Fahrenheit, or within HVAC equipment, shall be insulated in accordance with Standards Section 123.
§124:	Air handling duct systems shall be installed and insulated in compliance with Sections 601, 602, 603, 604, and 605 of the CMC Standards.

Controls

§122(e):	Each space conditioning system shall be installed with one of the following:
1A.	Each space conditioning system serving building types such as offices and manufacturing facilities (and all others not explicitly exempt from the requirements of Section 112 (d)) shall be installed with an automatic time switch with an accessible manual override that allows operation of the system during off-hours for up to 4 hours. The time switch shall be capable of programming different schedules for weekdays and weekends and have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted; or
1B.	An occupancy sensor to control the operating period of the system; or
1C.	A 4-hour timer that can be manually operated to control the operating period of the system.
2.	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback heating and/or a setup cooling thermostat setpoint.
§122(g):	Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 square feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut off independently of other isolation areas; and shall be controlled by a time control device as described above.
§122(c):	Thermostats shall have numeric setpoints in degrees Fahrenheit (F) and adjustable setpoint stops accessible only to authorized personnel.
§122(b):	Heat pumps shall be installed with controls to prevent electric resistance supplementary heater operation when the heating load can be met by the heat pump alone
§122(a&b):	Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55 degrees F or lower. For cooling, the control shall be adjustable up to 85 degrees F or higher. Where used for both heating and cooling, the control shall be capable of providing a deadband of at least 5 degrees F within which the supply of heating and cooling is shut off or reduced to a minimum.

Ventilation

§121(e):	Controls shall be provided to allow outside air dampers or devices to be operated at the ventilation rates as specified on these plans.
§122(f):	All gravity ventilating systems shall be provided with automatic or readily accessible manually operated dampers in all openings to the outside, except for combustion air openings.
§121(f):	Ventilation System Acceptance. Before an occupancy permit is granted for a newly constructed building or space, or a new ventilating system serving a building or space is operated for normal use, all ventilation systems serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance

Service Water Heating Systems

§113(c)	Installation
3.	Temperature controls for public lavatories. The controls shall limit the outlet Temperature to 110°F.
2.	Circulating service water-heating systems shall have a control capable of automatically turning off the circulating pump when hot water is not required.

CONSTRUCTION DOCUMENT SUBMITTAL (100% CD REVIEW)	4-30-14
CONSTRUCTION DOCUMENT SUBMITTAL (100%)	4-16-14
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Approved: Project Director	
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Building Number	1
Drawing Number	M701
	Dwg. 37 of 52

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